



420499

EXPANDED SITE INSPECTION REPORT

FOR

STERN RUBBER AND TOOL COMPANY

Staples, Minnesota

U.S. EPA ID: MND045973419

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STERN RUBBER & TOOL CO
MND 045973419

April 3, 1992

Ms. Jeanne Griffin
Program Support Section
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Region 5 (5HR-11)
77 West Jackson Street
Chicago, Illinois 60604

RECEIVED
APR 7 1992

OFFICE OF RCRA
Waste Management Division
U.S. EPA, REGION V

Dear Ms. Griffin:

RE: Minnesota Pollution Control Agency Submittal of An Expanded Site Inspection Report, Pursuant to the Preliminary Assessment/Site Inspection Cooperative Agreement

The Minnesota Pollution Control Agency (MPCA) staff submits for your review and approval one Expanded Site Inspection (ESI) Report.

ESI Site Name

Stern Rubber and Tool Company

Inspection Priority

NFRAP

4/9/92 OK

If you have any questions, please feel free to call me at 612/297-1793.

Sincerely,

Ronald R. Swenson

Ronald R. Swenson
Supervisor, Site Assessment Unit
Program Development Section
Ground Water and Solid Waste Division

RRS:kra

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SITE ASSESSMENT
SECTION

STERN RUBBER AND TOOL COMPANY
EXPANDED SITE INSPECTION

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Introduction	1
2.0 Site Background	2
2.1 Site Location	2
2.2 Site Description	2
2.3 Site History	2
2.4 Screening Site Inspection Summary	2
2.5 Interim Remedial Measures	5
3.0 Ground Water Pathway	8
3.1 Hydrogeology	8
3.2 Ground Water Targets	8
3.3 Well Sampling Locations	8
3.4 Results	12
3.5 Conclusions	12
4.0 Surface Water Pathway	16
4.1 Hydrologic Setting	16
4.2 Surface Water Targets	16
4.3 Surface Water/Sediment Sampling Locations	16
4.4 Results	16
4.5 Conclusions	17
5.0 Soil Exposure and Air Pathways	20
5.1 Background	20
5.2 Targets	20
5.3 Conclusions	20
6.0 Summary and Conclusions	21
7.0 References	22

APPENDICES

Appendix

- A. Four-Mile Radius Map
- B. Remedial Action Technical Memorandums
- C. Well Logs
- D. Site Photographs
- E. Well Stabilization Report
- F. Target Compound List and Target Analyte List
Quantitation/Detection Limits
- G. Laboratory Analytical Results
- H. Minnesota Department of Health Laboratory Analytical Results

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
2.1 Site Location	3
2.2 Site Features Map	4
2.3 Ground Water Toluene Plume	7
3.1 On-Site Sampling Locations	9
3.2 Off-Site Sampling Locations	10

LIST OF TABLES

<u>Table</u>	<u>Page</u>
3.1 Well Sampling Locations and Rationale	11
3.2 Summary of Sampled Wells	11
3.3a Summary of Chemical Analysis for Organic Compounds - RAS Ground Water	13
3.3b Summary of Chemical Analysis for Organic Compounds - SAS Ground Water	14
3.4 Summary of Chemical Analysis for Organic Compounds - Minnesota Department of Health Ground Water	15
4.1 Surface Water/Sediment Sampling Locations and Rationale	16
4.2a Summary of Chemical Analysis for Organic Compounds - RAS Surface Water	18
4.2b Summary of Chemical Analysis for Organic Compounds - RAS Sediment	19

STERN RUBBER AND TOOL COMPANY

Staples, Minnesota

EXPANDED SITE INSPECTION REPORT

1.0 INTRODUCTION

On April 1, 1985, the Stern Rubber and Tool Company (Site) located in Staples, Minnesota, was placed on the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) inventory of potential hazardous waste sites and assigned an U.S. Environmental Protection Agency (EPA) identification number MND045973419. A Preliminary Assessment (PA) for the Site was prepared by Minnesota Pollution Control Agency (MPCA) staff and approved by EPA on June 28, 1985. In May 1990, a Screening Site Inspection (SSI) for the Site was conducted by Ecology and Environment, Inc., (E & E, 1991), a Field Investigation Team subcontracted by EPA.

As a result of ground water contamination discovered by the SSI, MPCA was tasked by the EPA to conduct an Expanded Site Inspection (ESI) for the Site. An ESI Work Plan was prepared by MPCA and approved by EPA in July 1991. On August 6, 1991, the MPCA commenced an ESI at the Stern Rubber and Tool Company. This work was performed in cooperation with the EPA, under a Cooperative Agreement authorized by the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended (U.S. Congress, 1980, 1986; EPA 1990a, 1990b).

The general goals of an ESI are outlined below:

1. Collect additional data beyond the scope of the SSI to enable a more refined Hazard Ranking System (HRS) score; and
2. assess the likelihood of the site to qualify for the National Priorities List (NPL).

The site-specific objectives of this ESI are as follows:

1. Confirm the occurrence of toluene levels found in on-site ground water; and
2. further assess targets including the on-site pond and nearby residential wells, some of which were not sampled during the initial SSI.

To achieve these objectives, samples were collected and analyzed for three on-site production (nondrinking) wells, six residential wells, an up-gradient well, a down-gradient monitoring well, one municipal well, on-site pond water and sediment, and off-site pond sediment.

Sample collection, packaging and shipment was conducted in accordance with EPA required procedures and the MPCA Site Assessment Quality Assurance Project Plan (QAPP). All samples were analyzed by EPA Contract Laboratory Program (CLP) laboratories for volatile Target Compound List (TCL) compounds and Target Analyte List (TAL) analytes. Laboratory analytical data has been reviewed by the EPA for compliance with terms of the CLP.

In addition to the field work described above, interviews were held with representatives from the Site and other nearby commercial facilities.

2.0 SITE BACKGROUND

2.1 Site Location

Stern Tool and Rubber Company is located approximately one-half mile west of the intersection of West Prairie Avenue and County Road 30 in the city of Staples, Wadena County, Minnesota. See Figure 2.1. The Site lies within the Staples NE, Minnesota 7.5-minute quadrangle map as published by the U.S. Geological Survey. Specifically, the Site is in the SW $\frac{1}{4}$ of Section 35, T34N, R33W (Appendix A).

2.2 Site Description

The Stern Rubber and Tool Company (now American Rubber Products Corporation) Site is located on approximately 26 acres of former prairie land in the Staples Airport Industrial Park. Several commercial/light industrial businesses are located in the Industrial Park within approximately one-fourth mile of the Site. The Site is surrounded by a predominately rural agricultural setting.

Two main buildings are used for office space and production purposes, with two smaller buildings used for raw material storage and toluene storage. See Figure 2.2. Three nondrinking water wells, one deep well and two shallow sand point wells, are located on site. Manufacturing equipment is cooled with non-contact water obtained from on-site wells, and is discharged to a nearby man-made pond located immediately south of the facility.

2.3 Site History

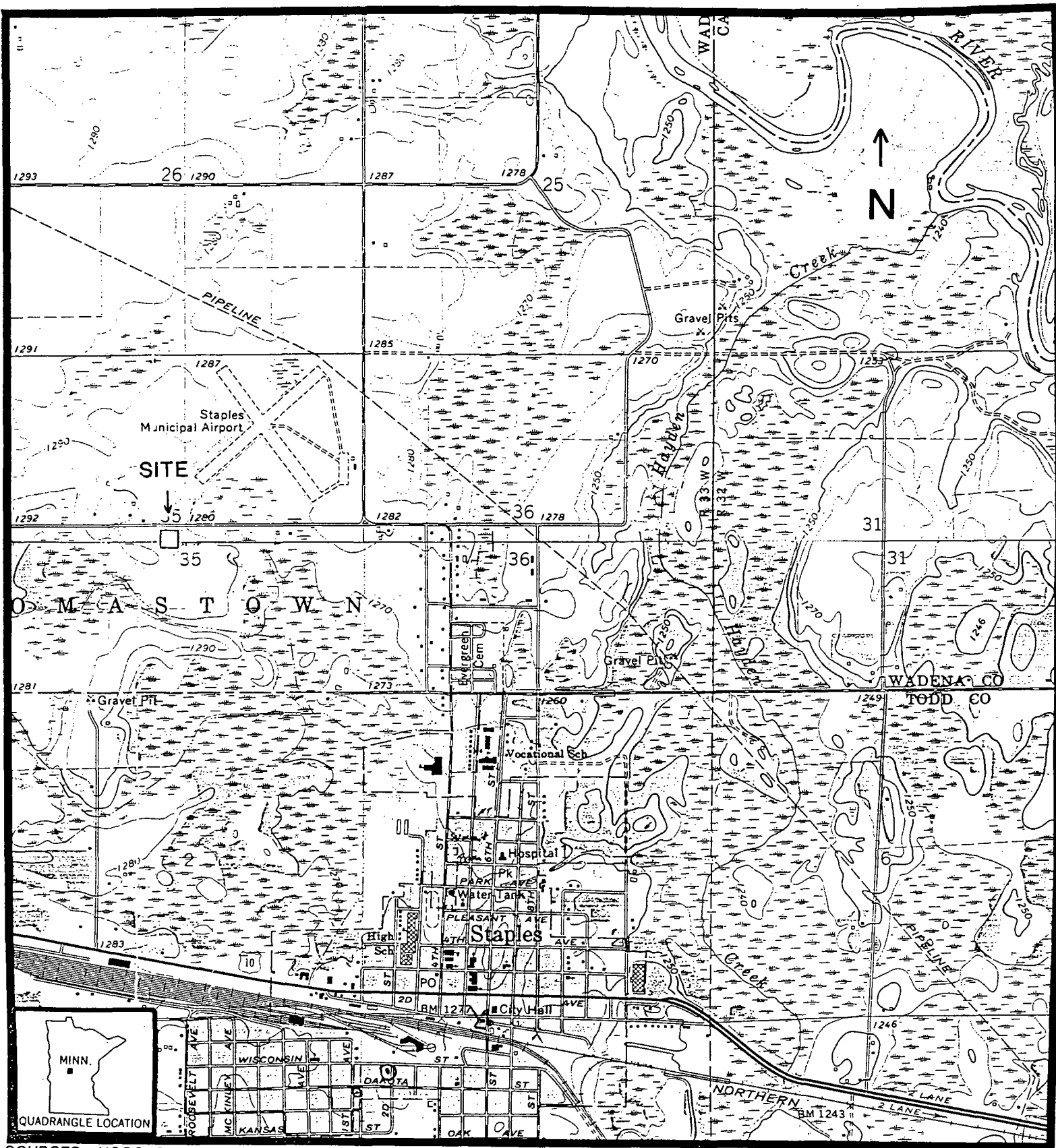
Stern Rubber and Tool Company operated on site from 1973 through 1986. In 1986 the company was purchased by American Rubber Products Corporation of LaPorte, Indiana. Beginning in 1973 the Site has been used to manufacture custom-molded rubber products. Raw materials include carbon black, natural rubber polymers, clays, coloring agents, sulfur, zinc oxide and processing oils (E & E, 1991).

Toluene is used to degrease finished rubber products (E & E, 1991). Prior to 1983, operational practices allowed for the spillage and dripping of used toluene onto soil near the northwest side of the pond (Nova, 1992a). Currently, waste toluene is stored on site and reclaimed. The company generates about twenty 55-gallon drums of liquid waste toluene a year. In the past, excess rubber was burned in outdoor open piles near the facility. Currently, excess rubber is disposed of off site. Waste processing oils are recycled (E & E, 1991).

On June 3, 1984, MPCA received a hotline complaint that alleged waste solvents had been dumped in the discharge cooling pond. A follow-up visit by MPCA staff on August 2, 1984 did not reveal any direct evidence of hazardous waste dumping, although no sampling was conducted (MPCA, 1992).

2.4 Screening Site Inspection Summary

In May 1990, Ecology and Environment, Inc., conducted the field work for a SSI (E & E, 1991). One on-site industrial well and two off-site residential well samples were collected and analyzed for TCL and TAL compounds. Discharge pond water, city municipal supply wells, and several existing nearby monitoring and residential wells were not sampled. Five on-site soil samples, one off-site (background) soil sample, and two pond sediment samples, were also collected and analyzed for TCL and TAL constituents. No surface water or air samples were collected.



SOURCES: USGS, Staples & Staples NE, MN Quadrangles, 7.5 Minute Series, 1966.

SCALE

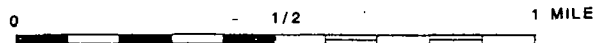


FIGURE 2.1 SITE LOCATION MAP

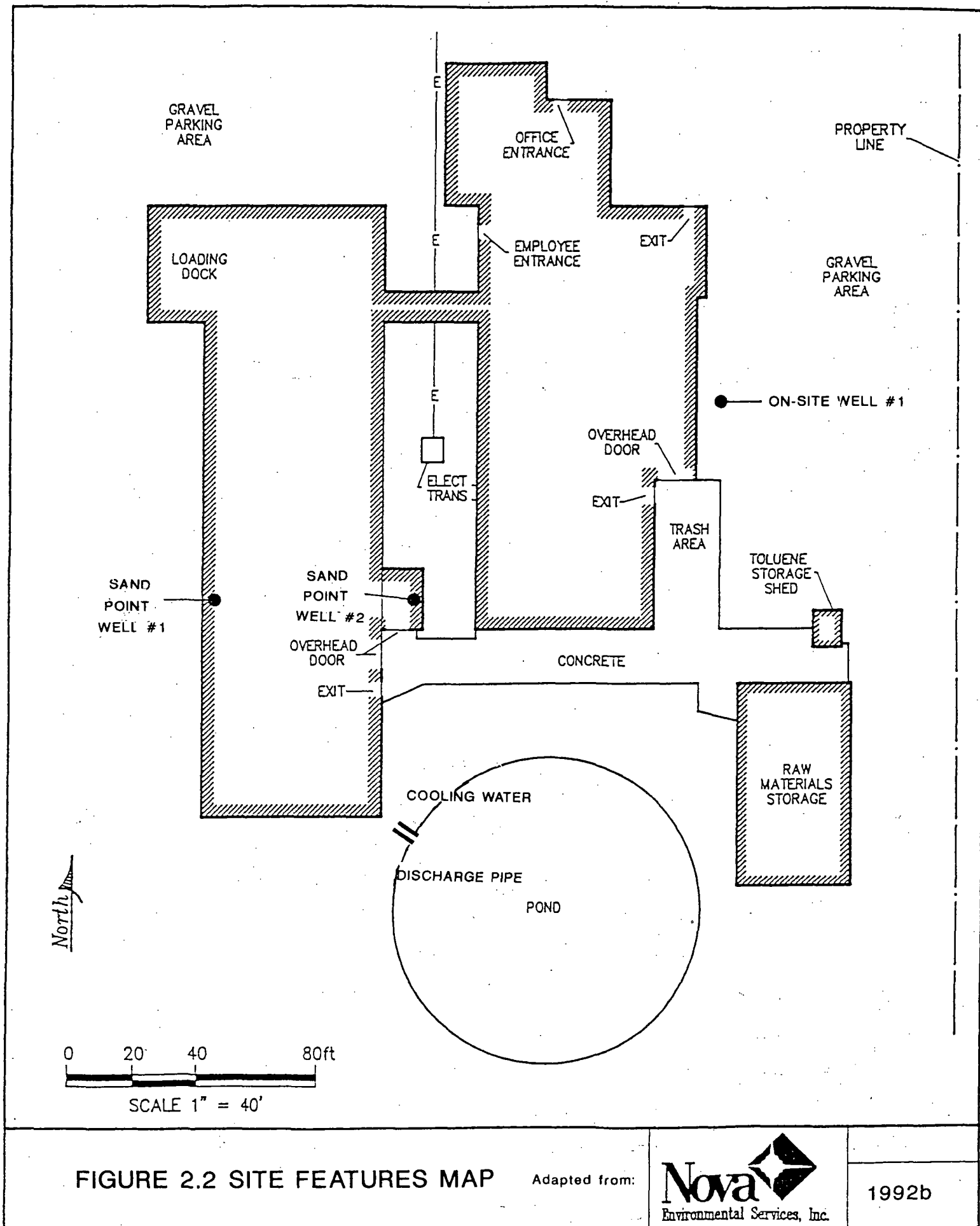


FIGURE 2.2 SITE FEATURES MAP

Adapted from:

Nova
Environmental Services, Inc.

1992b

An observed release of toluene to ground water was indicated by the SSI. A ground water sample from the on-site deep glacial drift well was found containing toluene at a level of 17,000 µg/l. This well also contained 2-methylphenol (770D µg/l) and 4-methylphenol (80 µg/l). Analysis of samples from two nearby residential wells did not show any other of these compounds, or any other contaminants to be present.

On-site soil samples were found to contain bis-2-ethylhexyl phthalate (410,000 µg/kg), beta BHC (240 µg/kg), gamma BHC "Lindane" (110 µg/kg), and zinc (2,500 µg/kg). Although phthalates are common laboratory and sampling contaminants, the high levels reported suggest an on-site contribution. The pesticides detected may be due to previous agricultural use of the area. The reason for the elevated zinc levels may be related to the use of zinc oxide at the facility.

In January 1991, a Management Assistance Review was performed by MPCA staff on the Draft SSI Report. MPCA staff recommended an ESI to include sampling of on-site pond water and additional private wells, and the possible installation of soil borings and monitoring wells. An ESI was commenced in August 1991.

2.5 Interim Remedial Actions

In January 1992 subsequent to ESI field work, the Site was transferred to the MPCA Property Transfer Technical Assistance Program, at the request of Mr. Terrel Stern, general manager and potential purchaser of the company, to conduct further investigations and any necessary remedial action (Stahnke, 1992).

In February 1992, a consulting firm contracted by Mr. Stern submitted technical memorandums to the MPCA outlining the source of toluene and a proposal for additional investigation and remedial actions (Nova, 1992a; 1992b). A draft technical memorandum outlining the results of that investigation and interim remedial actions was received by MPCA on March 12, 1992 (Nova, 1992c). An investigation report and corrective action plan was received on March 30, 1992 (Nova, 1992d).

Sampling performed on February 7-11, 1992, consisted of soil gas analysis in the vadose zone and sampling probes in saturated soil. Samples were analyzed for toluene using a mobile gas chromatograph. Samples were collected from around the perimeter of the on-site buildings. See Appendix B for details.

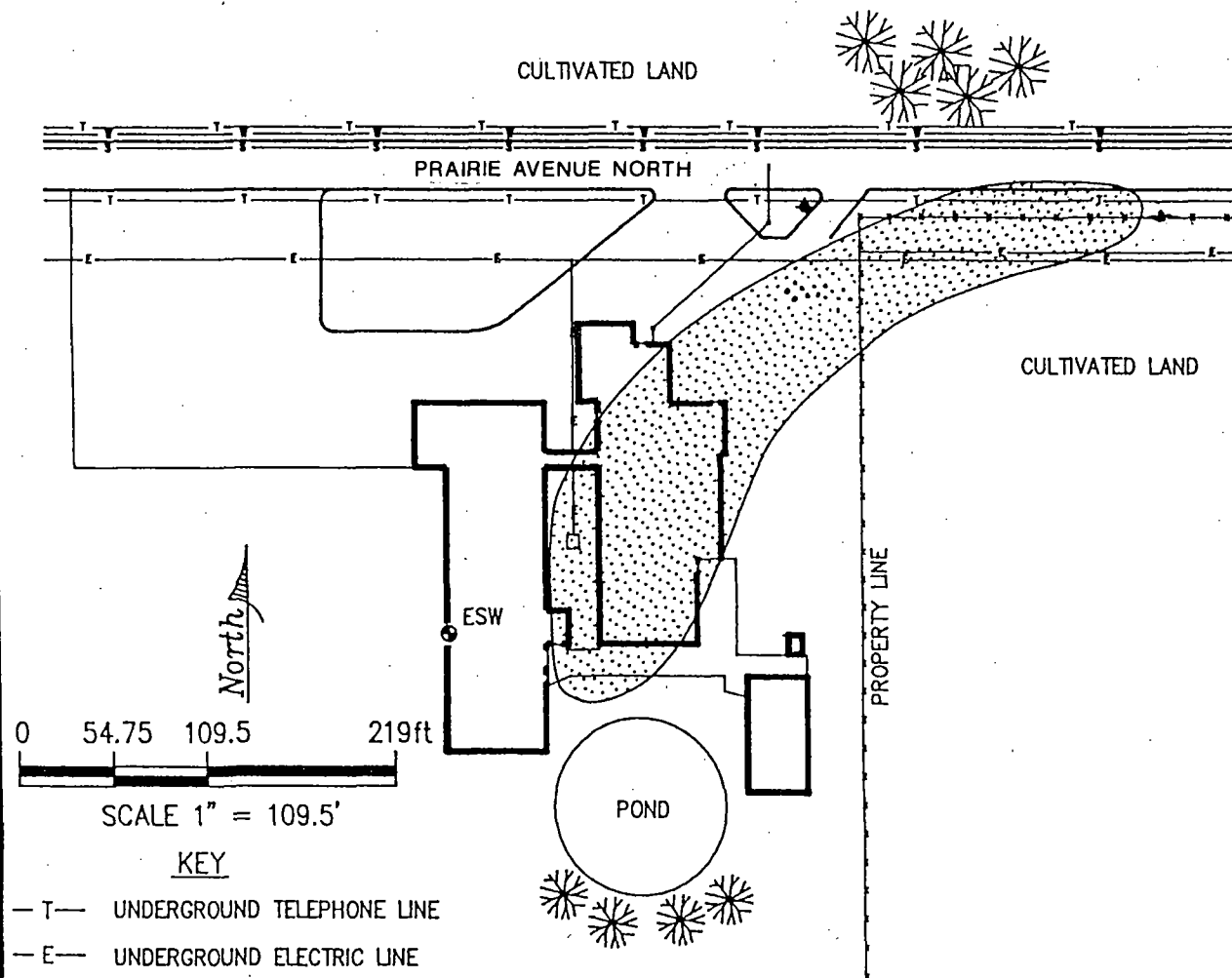
Soil gas analyses revealed a release of toluene to soil and ground water (Nova, 1992b). The highest levels of toluene were located near the exit doors from the western building, immediately northwest of the pond. Concentrations decreased gradually to the east, suggesting migration in an easterly direction, consistent with the surface grade and reported general direction of ground water flow (Nova, 1992b).

In early March 1992, approximately 150 cubic yards of soil were excavated and stockpiled on site. Soil was excavated until organic vapor meter readings were less than 50 parts per million (ppm), or until removal was impeded by cultural obstructions (e.g., buildings, pond, utilities), or the water table. Water collected from the bottom of the excavation analyzed with a field gas chromatograph yielded toluene levels in excess of 20,000 ppm (Nova, 1992b). Soil samples submitted for laboratory analysis detected toluene at 1200 ppm (Nova, 1992c).

Eighteen drive point wells were installed in the northeast quadrant of the Site and were sampled at the following depths: At the water table, 12 to 15 feet, 16 to 19 feet, 21 to 24 feet, and 26 to 29 feet. Analysis of ground water samples from these wells identified a toluene ground water contaminant plume extending toward the

northeast corner of the property. The lateral and vertical extent of the plume is approximately 50 to 80 feet wide, limited to the upper 20+ feet of a surficial aquifer bounded below by a clay and sand seam unit starting at 25 to 40 feet below the surface (Nova, 1992c; 1992d).

A toluene ground water plume extends to the north-northeast approximately 170 feet east of the Site boundary (Nova, 1992d). See Figure 2.3. Nearby residential wells located north and east of the site have been sampled and show no toluene contamination to date (MPCA, 1992). Remediation proposed for the Site include the installation of ground water pump-out wells with discharge sent via a sanitary sewer to the city of Staples wastewater treatment plant (Nova, 1992d). Investigative efforts are underway to further identify potential ground water targets located downgradient of the Site (Nova, 1992c).



KEY

- T - UNDERGROUND TELEPHONE LINE
- E - UNDERGROUND ELECTRIC LINE
- S - UNDERGROUND SEWER
- W - UNDERGROUND WATER LINE
- x - FENCE
- [Stippled Box] IMPACTED WATER

FIGURE 2.3 GROUND WATER TOLUENE PLUME

Adapted from:

Nova
Environmental Services, Inc.

1992d

3.0 GROUND WATER PATHWAY

3.1 Hydrogeologic Setting

The hydrogeology of the Site has been discussed in the SSI previously conducted on the Site (E & E, 1991). In general terms, the regional geology is characterized by approximately 200 feet of unconsolidated Quaternary glacial drift overlying impermeable Precambrian crystalline bedrock. Glacial deposits consist of clay, silt, sand, and gravel found as outwash and a buried drumlin field associated with the Alexandria Moraine of the Wadena Lobe (Hobbs and Goebels, 1982). Native on-site soil consists of 25 to 40 feet of fine to medium sand underlain by a clay with sand seams unit roughly 100+ feet thick, followed again by sand. The surficial sand has an estimated hydraulic conductivity of 0.0288 cm/sec (Nova, 1992c). The underlying bedrock is comprised of various granitoid and gneissic rocks (Morey, 1981).

Analysis of water level data from existing shallow monitoring wells located at the Staples Airport suggests the regional ground water flow is to the east-southeast toward Hayden Creek, a tributary to the Crow Wing River (MPCA, 1992). On-site ground water is reported to flow to the northeast with a gradient of 0.002. Mounding effects in the water table are also reported to have been observed near the discharge pond (Nova, 1992c). Depth to ground water on-site ranges from 6 to 8 feet (Nova, 1992d).

3.2 Ground Water Targets

Ground water is used exclusively as the source of drinking water within a four-mile radius of the Site. Area well logs indicate that the sand and gravel units within the glacial outwash comprise the aquifer of concern used for drinking water in the vicinity of the Site (Appendix C). No contiguous confining layers are documented in the glacial drift within the study area. Bedrock is generally not used as a source of drinking water within the four-mile radius study area (Kanivetsky, 1978). For purposes of this report, the aquifer of concern is the glacial drift aquifer.

The Stern Rubber and Tool (American Rubber Products) facility is served by a city water main which extends along West Prairie Road. Drinking water at the Site is provided by city supply wells located approximately one and one-half miles southeast of the Site. The city of Staples utilizes three glacial drift aquifer wells to provide drinking water to a population of approximately 2,800. These wells are screened at depth intervals between 53 to 73 feet (Minnesota Department of Health [MDH], 1989).

The closest identified drinking well is at a private residence located approximately 500 feet northwest of the Site. Approximately 474 persons are estimated to be served by private wells located within three miles of the Site. The total drinking water population served by ground water wells within a three-mile radius of the Site has been previously estimated at 3,505 (E & E, 1991).

3.3 Well Sample Locations

The ground water sampling strategy consisted of re-sampling the on-site deep glacial drift well, where toluene had previously been detected. Two residential wells were also re-sampled. In addition, several other wells that were not sampled by the previous SSI were sampled including a downgradient monitoring well, an upgradient well and four residential wells, and Staples municipal well #2. See Figures 3.1 and 3.2 for well sampling locations. Photographs of sampling locations are found in Appendix D.

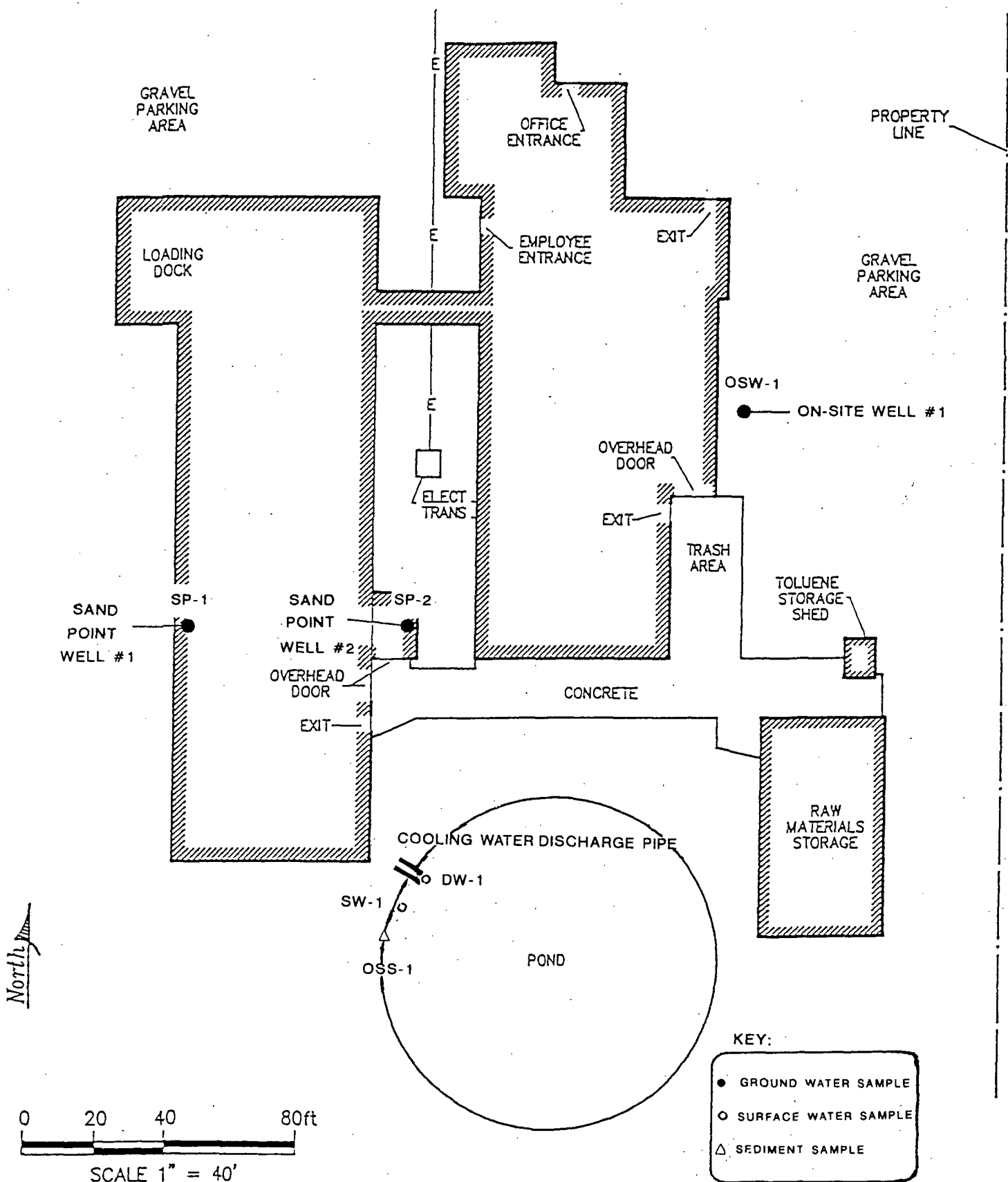
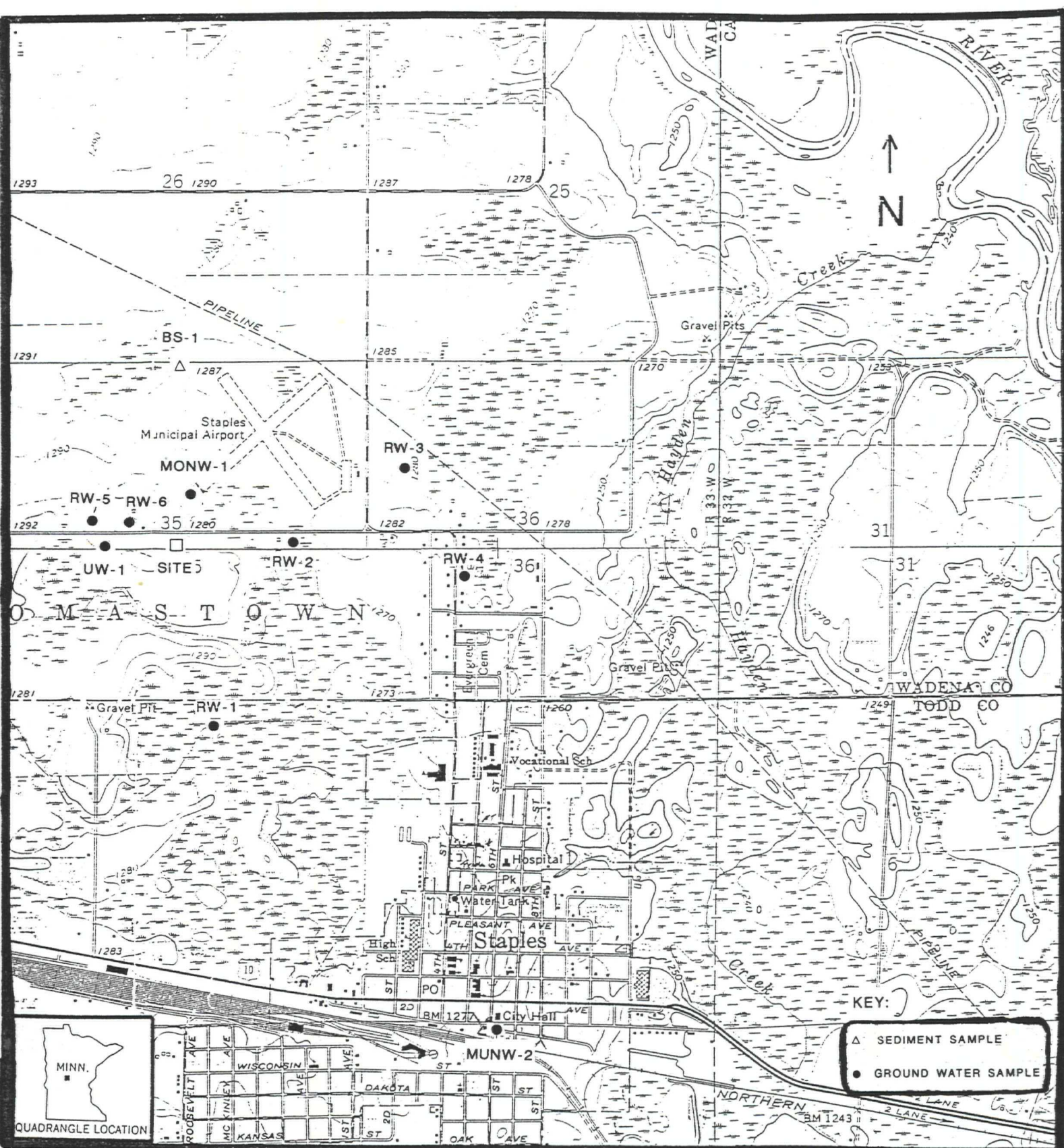


FIGURE 3.1
ON-SITE SAMPLING LOCATIONS

Adapted from:

Nova
Environmental Services, Inc.

1992b



SOURCES: USGS, Staples & Staples NE, MN Quadrangles, 7.5 Minute Series, 1966.



FIGURE 3.2 OFF-SITE SAMPLING LOCATIONS

The rationale for the sampling locations is presented below in Table 3.1.

TABLE 3.1 WELL SAMPLING LOCATIONS AND RATIONALE

<u>SAMPLE LOCATION</u>	<u>RATIONALE</u>
Nondrinking Wells	
*Airport monitoring well 1	down-gradient control
On-site well (deep)	confirm previous toluene detection
*Ultra Color	up-gradient control
Drinking Wells	
*Municipal well 2	possible targets
L. Otteson	possible targets
Scheiterlein	possible targets
*Corner (rental)	possible targets
*Smith	possible targets
*R. Otteson	possible targets

*Note: Wells not sampled by the previous SSI (E & E, 1991)

A summary of the wells sampled is presented below in Table 3.2. All wells sampled are open to the glacial drift aquifer (MPCA, 1992).

TABLE 3.2 SUMMARY OF SAMPLED WELLS

<u>WELL NAME</u>	<u>LOCATION</u>	<u>DEPTH (feet)</u>
MUNW-2	Municipal well 2	68
RW-1	Scheiterlein	25
RW-2	Corner (rental)	?
RW-3	Kittleson	60
RW-4	Smith	?
RW-5	R. Otteson	58
RW-6	L. Otteson	189
MONW-1	Airport	21
OSW-1	On-site (deep)	182
UW-1	Ultra Color	30

In addition to well sampling, several commercial/light industrial businesses near the Site were visited, and personnel were interviewed regarding the possible use/disposal of toluene and other solvents used by these operations.

Well sampling was conducted on August 6 and 7, 1991. Wells which were not recently used were purged prior to sampling. The airport monitoring well MONW-1 was purged with a Teflon bailer. Standard stabilization tests were run on purged water (Appendix E). An existing pump in the Ultra Color well (UW-1) was run to flush approximately 12 well volumes through the well system before sampling. All other wells had been recently pumped and were allowed to run a few minutes prior to sampling to flush the associated plumbing. Organic vapor field readings of purged water was performed using an OVM model 580S photoionization detector.

Ground water samples were preserved with hydrochloric acid. Ground water samples were collected, packaged, and shipped in accordance with EPA required procedures and the MPCA Site Assessment QAPP.

Because toluene was identified as the contaminant of concern by the previous SSI, ground water samples were analyzed for volatile organic aromatic (VOA) compounds only, in order to minimize analytical costs. For a complete list of the specific organic compounds analyzed see Appendix F. Laboratory data sheets are found in Appendix G. Analyses were performed by the University of Iowa and S-Cubed, both EPA contracted laboratories.

3.4 Results

Toluene was found in the deep glacial drift on-site production well (OSW-1) at a level of 7J $\mu\text{g/l}$. See Table 3.3a. The J qualifier was assigned due to a low level estimate below the contract required quantification level of 10 $\mu\text{g/l}$. Table 3.3b indicates that VOA compounds were not detected in drinking water wells; however, it should be noted that the analytical laboratory exceeded the 14-day holding time for these samples. Thus, these nondetections may be due to possible low bias resulting from the potential loss of volatile compounds.

Because of the holding time problem with drinking water samples as described above, follow-up sampling was conducted using the MDH analytical laboratory. Samples were collected on October 17, 1991 using MPCA sampling protocol. The nearest downgradient residential well (RW-2) and the deep on-site well (OSW-1) were re-sampled. In addition, two on-site shallow sandpoint wells (SP-1, SP-2) which were previously not sampled. Both of the sandpoint wells are approximately 20 feet in depth and are used for industrial cooling purposes only.

Table 3.4 presents the results from the follow-up sampling. See Appendix H for laboratory data sheets. Several volatile organic compounds were found in the wells. Toluene at a level of 210 $\mu\text{g/l}$ was found in one of the sandpoint wells (SP-1). Methyl isobutyl ketone was found in the other sandpoint well (SP-2), with a level of 5.7 $\mu\text{g/l}$. Sandpoint SP-2 also displayed low levels of ethylbenzene, tetrachloroethene, and xylenes. Low levels of carbon tetrachloride were detected in all wells.

3.5 Conclusions

A release of toluene to ground water from the Site is confirmed by sampling results. Previous and follow-up sampling results suggest a ground water release of methylphenols, methyl isobutyl, ketone, and xylenes from the Site may have also occurred.

Attribution of the toluene to Stern Rubber and Tool Company is based on the following observations: Toluene is not naturally found in ground water, toluene is stored and used on site; no other sources of toluene in the vicinity of the Site are known or suspected; previously detected high levels of toluene in the on-site well suggest an on-site source; and toluene has allegedly been dumped and spilled on site.

It is noted that repair of a cracked well casing on the on-site deep glacial drift well (OSW-1) in July 1991 may explain why the levels of toluene in this well have dropped significantly in subsequent sampling events. It is postulated that a crack in the casing may have allowed toluene near the water table to contaminate the deep well (Nova, 1992b).

The relatively low level detection of carbon tetrachloride, ethyl benzene, and tetrachloroethane do not appear to clearly establish a release to ground water of these compounds with the sampling data presently available.

Subsequent analysis of ground water and soil as part of voluntary interim remedial actions, suggest off-site migration of a toluene plume is occurring in a northeasterly direction from the Site (Nova, 1992c).

STERN RUBBER AND TOOL COMPANY
STAPLES, MINNESOTA

TABLE 3.3a
SUMMARY OF CHEMICAL ANALYSIS FOR
ORGANIC COMPOUNDS - RAS GROUND WATER *

SAMPLE NUMBER	R03	R04	D02	S09	R05	S12	S16
DATE	8/6/91	8/6/91	8/6/91	8/6/91	8/7/91	8/7/91	8/7/91
TIME	8:30	18:30	20:10	20:15	10:05	11:15	13:30
SAMPLE LOCATION	Trip Blank	Bailer Blank	MONW-1 Airport	MONW-1 Airport	Field Blank	OSW-1 On-Site Well	UW-1 Ultra Color
ORGANIC TRAFFIC REPORT #	ENS 24	ENS 25	ENS 27	ENS 28	ENS 29	ENS 31	ENS 34
COMPOUND DETECTED (ug/L)							
VOLATILE ORGANICS							
Toluene	--	--	--	--	--	7 J	--
SEMI-VOLATILE ORGANICS							
Not Analyzed							
PESTICIDES/PCB'S							
Not Analyzed							

* Laboratory Performing Analysis: University of Iowa, Iowa City, Iowa.

-- Undetected.

J - Compound was detected but numerical value is estimated because certain sample preparation or instrument QC criteria were not met.

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STAPLES, MINNESOTA

TABLE 3.3b
SUMMARY OF CHEMICAL ANALYSIS FOR
ORGANIC COMPOUNDS - SAS GROUND WATER *

SAMPLE NUMBER	R01	R02	D01	S01	S02	S03	S04	S05	S06	S07
DATE	8/6/91	8/6/91	8/6/91	8/6/91	8/6/91	8/6/91	8/6/91	8/6/91	8/6/91	8/6/91
TIME	8:30	11:45	12:00	12:10	13:55	16:15	14:45	15:15	16:50	17:25
SAMPLE LOCATION	Trip	Field	Dup	MUNW-2	RW-1	RW-2	RW-3	RW-4	RW-5	RW-6
	Blank	Blank	S01	Staples	Scheiterlein	Corner Rental	Kittleson	Smith	R. Otteson	L. Otteson
ORGANIC TRAFFIC REPORT #	EKL 93	EKL 27	EKL 28	EKL 29	ENS 05	ENS 18	ENS 19	ENS 20	ENS 21	ENS 22
COMPOUND DETECTED (ug/L)										
VOLATILE ORGANICS										
Holding times exceeded in all samples.	UJ	UJ	UJ	^	UJ	^	UJ	UJ	UJ	UJ
SEMI-VOLATILE ORGANICS										
Not Analyzed										
PESTICIDES/PCB'S										
Not Analyzed										

* Laboratory Performing Analysis: S-Cubed, San Diego, California.

UJ - Undetected estimate, a low bias is possible due to exceedence of sample holding times and a potential loss of volatile compounds.

^ Sample not analyzed due to laboratory instrument failure.

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STAPLES, MINNESOTA

TABLE 3.4
SUMMARY OF CHEMICAL ANALYSIS FOR
ORGANIC COMPOUNDS - MDH WATER *

SAMPLE NUMBER	TB	RW-2	OSW-1	SP-1	SP-2
DATE	10/17/91	10/17/91	10/17/91	10/17/91	10/17/91
TIME	8:30	11:35	12:30	13:00	13:30
SAMPLE	Trip	Res	On-site	Sand-point	Sand-point
LOCATION	Blank	Well #2	Deep	Well #1	Well #2
		Corner	Well	(Southwest)	(Southeast)
		Rental			
COMPOUND DETECTED (ug/L)					
VOLATILE ORGANICS					
Carbon Tetrachloride	--	0.2	0.2	0.2	0.2
Ethyl benzene	--	--	--	--	0.3
Methyl isobutyl ketone	--	--	--	5.7	--
Tetrachloroethene	--	--	--	--	0.2
Toluene	--	--	19	9.6	210
m + p-Xylene	--	--	--	--	1.5
o-Xylene	--	--	--	--	0.3

* Laboratory Performing Analysis: State of Minnesota Department of Health (MDH).

-- Undetected.

4.0 SURFACE WATER PATHWAY

4.1 Hydrologic Setting

The Site is located within the Crow Wing River watershed which drains into the Mississippi River. Topography of the watershed is slightly- to moderately-undulating with a local relief of about 50 feet. The water budget for the watershed is as follows (Lindholm, et al., 1972):

$$\begin{array}{rcccc} \text{precipitation} & = & \text{evapotranspiration} & + & \text{run-off} & + & \text{storage and underflow} \\ 26.4 \text{ inches} & & 22.5 \text{ inches} & & 3.9 \text{ inches} & & 0 \end{array}$$

The nearest natural surface body water is Hayden Creek, a tributary of the Crow Wing River, located approximately one and one-fourth miles east of the Site. Wetlands are located about one-half mile north, and approximately one-eighth mile south of the Site (E & E, 1991). A small man-made discharge pond is located on site to collect the discharge of noncontact cooling water from plant operations.

4.2 Surface Water Targets

Site topography prevents surface water run-off from entering the creek or wetlands via a direct route. Surface water is not used for drinking purposes within a four-mile radius of the Site (E & E, 1991). Game fish have been caught in the on-site discharge pond (MPCA, 1992).

4.3 Surface Water/Sediment Sample Locations

The SSI did not sample surface water. Surface water samples, as part of the ESI, were collected from the on-site discharge pond and a discharge pipe leading from the factory to the pond. Sediment was collected from the on-site pond, as well as from the wetland north of the Site to serve as a background sample. See Figures 3.1 and 3.2 for sampling locations. Appendix D presents photographs of sampling locations.

The rationale for the sampling locations is presented below in Table 4.1.

TABLE 4.1 SURFACE WATER/SEDIMENT SAMPLING LOCATIONS AND RATIONALE

<u>SAMPLE LOCATION</u>	<u>RATIONALE</u>
Surface Water	
on-site pond water	possible target
discharge water	possible direct observation
Sediment	
on-site pond sediment	possible food chain target
off-site pond sediment	background sample

4.4 Results

Because toluene was identified as a major contaminant of concern by the previous SSI, surface water and sediment samples were analyzed for VOA compounds only, in order to minimize analytical costs. For a complete list of the specific compounds analyzed see Appendix F. Laboratory data sheets are found in Appendix G. Analyses of surface water and sediment samples were performed by the University of Iowa, an EPA contracted laboratory.

Table 4.2a indicates a low level of toluene was detected in water discharged to the pond from the plant operations. Table 4.2b shows sediment from the pond displayed low levels of 1,2-dichloroethane. Acetone was found in the discharge pond as well as the off-site background sediment sample.

4.5 Conclusions

Sampling results do not clearly indicate a release to on-site surface water or sediment. The low levels of 1,2-dichloroethane reported in the on-site pond sediment sample is below the contract required quantification level. The presence of acetone in both on-site and off-site pond sediment suggests a possible laboratory contaminant.

STERN RUBBER AND TOOL COMPANY
STAPLES, MINNESOTA

TABLE 4.2a
SUMMARY OF CHEMICAL ANALYSIS FOR
ORGANIC COMPOUNDS - RAS SURFACE WATER *

SAMPLE NUMBER	R03	R05	S10	S11
DATE	8/6/91	8/7/91	8/7/91	8/7/91
TIME	8:30	10:05	10:15	10:25
SAMPLE LOCATION	Trip Blank	Field Blank	SW-1 Discharge Pond	DW-1 Discharge Pipe
ORGANIC TRAFFIC REPORT #	ENS 24	ENS 29	ENS 23	ENS 30
COMPOUND DETECTED (ug/L)				
VOLATILE ORGANICS				
Toluene	--	--	--	2J
SEMI-VOLATILE ORGANICS				
Not Analyzed				
PESTICIDES/PCB'S				
Not Analyzed				

* Laboratory Performing Analysis: University of Iowa, Iowa City, Iowa.

-- Undetected.

J - Compound was detected but numerical value is estimated because certain sample preparation or instrument QC criteria were not met.

STERN RUBBER AND TOOL COMPANY
STAPLES, MINNESOTA

TABLE 4.2b
SUMMARY OF CHEMICAL ANALYSIS FOR
ORGANIC COMPOUNDS - RAS SEDIMENT *

SAMPLE NUMBER	S14	S15
DATE	8/7/91	8/7/91
TIME	10:40	9:15
SAMPLE LOCATION	OSS-1	BS-1
	Discharge Pond Sediment	Background Sediment
ORGANIC TRAFFIC REPORT #	ENS 33	ENS 26
COMPOUND DETECTED (ug/kg)		
VOLATILE ORGANICS		
Acetone	21	18
1,2-dichloroethane	5J	--
SEMI-VOLATILE ORGANICS		
Not Analyzed		
PESTICIDES/PCB'S		
Not Analyzed		

* Laboratory Performing Analysis: University of Iowa, Iowa City, Iowa.

J - Compound was detected but numerical value is estimated because certain sample preparation or instrument QC criteria were not met.

-- Undetected.

5.0 SOIL EXPOSURE AND AIR PATHWAYS

5.1 Background

Previous surficial soil analyses conducted as part of the SSI indicated a release of bis-(2-ethylhexyl) phthalate and zinc attributable to Site operations (E & E, 1991). No additional soil testing was conducted as part of this ESI. In early March 1992, approximately 150 cubic yards of soil was removed and stockpiled on-site as part of an interim remedial action (Nova, 1992b).

No air samples were collected as part of the initial SSI (E & E, 1991). No airborne particulates were observed on-site. Organic vapor field readings of on-site ground water, soil, and outdoor air during the ESI were not detected above background (MPCA, 1992). Thus, no air samples were collected as part of this ESI.

5.2 Targets

Site operations employ 79 workers. Approximately 126 people live within a 1-mile radius of the Site (E & E, 1991).

5.3 Conclusions

In-place surficial soil and excavated stockpiled soil contain toluene, bis-(2-ethylhexyl) phthalate, zinc and other chemical constituents (E & E, 1991; Nova, 1992d). There is a potential for workers and nearby residents to come into contact with these compounds.

The release of contaminants to air is not considered a significant pathway.

6.0 SUMMARY AND CONCLUSIONS

The Stern Rubber and Tool Company ESI gathered data to evaluate the Site as a potential candidate for the NPL. To accomplish this task, samples were collected and analyzed for three on-site production (nondrinking) wells, six residential wells, an up-gradient well, a down-gradient monitoring well, one municipal well, on-site pond water and sediment, and off-site pond sediment. In addition to the field work described above, interviews were held with representatives from the Site, as well as for nearby commercial facilities. Data from previous and on-going investigations of the Site was also researched and evaluated.

An observed release of toluene from the Site to ground water has been established. The nearest drinking water well is located approximately 500 feet northwest of the Site. A population of 3,505 is estimated to be served by residential or municipal drinking wells drawing from the aquifer of concern within a three-mile radius of the Site. To date, no drinking water wells have been found to be contaminated.

Sampling results indicate there has been a release of toluene, bis-(2-ethylhexyl) phthalate, and zinc to soil from the Site. There is a potential for soil exposure of these constituents to workers and area residents.

The potential release of contaminants from the Site to air is not considered a significant pathway.

On-going voluntary interim remedial actions including soil excavation and a proposed ground water treatment system are expected to address concerns of potential impacts to human health and the environment. Continued monitoring of nearby residential wells is recommended.

7.0 REFERENCES

- Ecology and Environment, Inc., 1991 "Screening Site Inspection Report for Stern Rubber and Tool Company, Staples, Minnesota," April 30, 1991.
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- Minnesota Pollution Control Agency, 1992. Site Assessment Unit files, 520 Lafayette Road, St. Paul, Minnesota, 55155.
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- Nova Environmental Services, Inc., 1992b. "Toluene Release Investigation and Interim Remedial Actions," Technical Memorandum, February 26, 1992.
- Nova Environmental Services, Inc., 1992c. "Results of Ground Water Characterization," Draft Technical Memorandum, March 11, 1992.
- Nova Environmental Services, Inc., 1992d. "American Rubber Products Investigation Report and Corrective Action Plan," March 27, 1992, Project No.: M91-M28.
- Stahnke, Jerry, 1992. Personal communication March 16, 1992 and subsequent dates, Minnesota Pollution Control Agency, Property Transfer Technical Assistance Unit, 520 Lafayette Road, St. Paul, Minnesota, 55155.
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- U.S. Environmental Protection Agency, 1990a. Hazard Ranking System; Final Rule, 55 FR 51532, December 14, 1990.
- U.S. Environmental Protection Agency, 1990b. National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300, 55 FR 8666, March 8, 1990.

A

TECHNICAL MEMORANDUM

TO: American Rubber Products, Inc. Remedial Investigation File

FROM: Bob Havrilak, Nova Environmental Services, Inc.

DATE: February 19, 1992

RE: Source and Extent of Toluene Release

On February 7, 10, and 11, Nova personnel were at the American Rubber Products, Inc. facility in Staples to investigate the suspected uncontrolled release of toluene. During the three day effort:

- a facility inspection was conducted to assess current use and handling practices of toluene, and the potential for release,
- interviews with key plant personnel were conducted to obtain information on the historic use and handling of toluene,
- an assessment of the water supply systems was conducted to determine potential for worker exposure through ingestion of toluene contaminated groundwater, and
- a field investigation was conducted to identify releases to soil, and ground water contamination.

The observed handling of toluene currently in practice appears to offer little opportunity for release to the environment. There was less than ten gallons of toluene in use during the facility inspection. The toluene was contained in a shop area in two metal lidded safety containers. The shop area is built with concrete slab on grade floor, without floor drains.

The interviews conducted identified past toluene use and handling procedures that created potential for releases to occur. This information was used to identify potential release areas for consideration during the field investigation.

The plumbing and septic systems were evaluated. The on-site wells are plumbed to a water line providing cooling water to processing equipment. The cooling water line is separate from the general municipal water supply plumbing. Cooling water is discharged to the pond south of the buildings, and the general water supply is plumbed to a septic system. There were no floor drains observed in the processing facility area.

A soil gas reconnaissance was conducted around the perimeter of the buildings. Samples of the gases from the vadose zone were analyzed with a mobile Gas Chromatograph (GC). The reconnaissance detected high levels of toluene in the soil gases in the area immediately north of the pond. The highest concentration measured was 1201.8 ppm in the vicinity of an exit door from the western building immediately northwest of the pond. The concentrations drop gradually to the east, suggesting migration in an easterly direction. This is consistent with the surface grade, and the reported easterly groundwater flow direction. The attached Figure summarizes the data from the soil gas reconnaissance.

Groundwater was identified near the pond at a depth of 4 to 5 feet prohibiting soil gas collection. A soil sampling probe was used to collect samples of saturated soil in these areas. The samples were analyzed using head space techniques with the GC. Toluene was measured the saturated soil at the location of the highest soil gas measurement at 118.2 ppm. The concentrations graded to the low part per billion range in an easterly direction. The soil probe sample results are also summarized on the attached Figure.

An interview with one of the plant personnel identified that prior to 1983 parts degreasing had been done outside the facility. Three 55 gallon galvanized steel troughs containing toluene had been staged near an exit door adjacent to the northwest corner of the pond. This location coincides with the highest levels measured for soil gas and saturated soil in the field investigation. Parts were dipped into the container and air dried on pallets nearby. When the toluene was dirty, it was transferred to barrels for disposal for off-site disposal. A pump was provided to workers to accomplish this task. It was not the policy of the company to dump the toluene onto the ground, however it is probable that spillage occurred during the filling and emptying the troughs, dipping and removing the parts, and stacking the toluene rinsed parts on the pallets. It is also possible that worker mishandling of the toluene resulted in releases.

Measured concentrations, and the expected groundwater flow direction supports the conclusion that toluene has leached into the groundwater and migrated to generally towards the east. The reduced concentrations measured in both soil gas and saturated sand samples suggests that natural attenuation mechanisms of dispersion and degradation of toluene have reduced the levels of concentration dramatically within hundreds of feet of the release area.

INTERIM REMEDIAL ACTION

RELEASE AREA

In order to eliminate continued release of residual toluene in the soil to groundwater, the contaminated soil from the release area will be excavated to the water table. The limits of the excavation will be confined by the adjacent buildings, and the pond, and will be and Photoionization Detector readings. The soils will be stockpiled on plastic south of the buildings in a field owned by ARP for evaluation and appropriate disposition. It is estimated that approximately 150 yards of material will be removed.

GROUNDWATER MIGRATION

A row of drive point wells will be installed along the eastern edge of the property to develop projections on the lateral and vertical extent and concentration of the toluene groundwater plume. Starting at a point directly east of the release area wells will be installed on 30 foot centers in a north and south direction, until the samples collected and analyzed return non-detects. As the wells are driven, they will be developed and sampled at 5 foot intervals to determine the vertical extent. The wells will be driven to total depth of 20 feet.

A driven well using the same technique will also be placed in the release area to assess groundwater contamination.

Based on the concentrations of the toluene in the series of wells, an assessment of need for corrective action will be developed. A potential corrective action would be air sparging using the driven wells along the boundary and the release area to enhance volatilization and degradation.

The intent of the investigation and interim action of sparging is to eliminate any further off-site migration.



S.B. Cummings
President
J.E. Findley
Chief Executive Officer

February 27, 1992

Mr. Gerry Stahnke
Minnesota Pollution Control Agency
PTTA Program
520 Lafayette Road
St. Paul, MN 55155

RECEIVED

MAR 02 92

MPCA, Ground Water
& Solid Waste Div

RE: AMERICAN RUBBER PRODUCTS
SITE MN D045973419

Dear Mr. Stahnke:

Enclosed is the revised technical memorandum we discussed in our February 20, 1992 meeting. We have included in the document the points you raised at the meeting. Please review the materials. If we have misinterpreted any items agreed to, please notify me immediately.

We are implementing the Interim Remedial Measures the week of March 1. Around mid March, we will ask for another meeting to review the findings. We expect to have summary report in your hands before the end of March, and will make a verbal presentation of the findings with the submittal. At that time we will ask for a formal response to the corrective action program.

On behalf of our client and Nova, thank you for your very prompt and cooperative responses. We recognize the approach taken in this effort is quite different than the formal protocol normally associated with work in the PTTA Program, and really appreciate your consideration.

Sincerely,

NOVA ENVIRONMENTAL SERVICES, INC.

A handwritten signature in cursive script, appearing to read "Robert J. Havrilak".

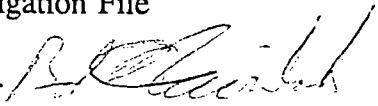
Robert J. Havrilak, P.E.

Vice President

Environmental Management
Services Division

TECHNICAL MEMORANDUM

TO: American Rubber Products, Inc. Remedial Investigation File

FROM: Bob Havrilak, Nova Environmental Services, Inc. 

DATE: February 26, 1992

RE: Toluene Release Investigation and Interim Remedial Actions

On February 7, 10, and 11, Nova personnel were at the American Rubber Products, Inc. (ARP) facility in Staples, Minnesota to investigate the suspected uncontrolled release of toluene. During the three day effort:

- a facility inspection was conducted to assess current use and handling practices of toluene, and the potential for release;
- interviews with key plant personnel were conducted to obtain information on the historic use and handling of toluene;
- an assessment of the water supply systems was conducted to determine potential for worker exposure through ingestion of toluene contaminated ground water, and
- a field investigation was conducted to identify releases of toluene to soil.

The observed handling of toluene currently in practice appears to offer little opportunity for release to the environment. There was less than ten gallons of toluene in use during the facility inspection. The toluene was contained in a shop area in two metal lidded safety containers. The shop area is built with concrete slab on grade floor, without floor drains.

The interviews identified past toluene use and handling procedures that created potential for releases to occur. This information was used to identify potential release areas for consideration during the field investigation.

The plumbing and septic systems were evaluated. The on-site wells are plumbed to a water line providing cooling water to processing equipment. The cooling water line is separate from the general municipal water supply plumbing. The on-site wells are not used to supply water for general use or drinking. Cooling water is discharged to the pond south of the buildings, and the general water supply is plumbed to a septic system. There were no floor drains observed in the processing facility area.

A soil gas reconnaissance was conducted around the perimeter of the buildings. The locations of the sampling points are identified on Figure 1. Samples of the gases from the vadose zone were analyzed with a mobile Gas Chromatograph (GC) for Toluene. The reconnaissance detected high levels of toluene in the soil gases in the area immediately north of the pond. The highest concentration measured was 1201.8 parts per million (ppm) at sampling point SG-7 near the vicinity of an exit door from the western building immediately northwest of the pond. The concentrations drop gradually to the east, suggesting migration in an easterly direction. This is consistent with the surface grade, and the reported easterly ground water flow direction.

Ground water ranged from 5 to 7 feet below grade across the site. Native soil at the site consists of fine to medium sand to an unknown depth. Ground water was identified near the pond at a depth of 4 to 5 feet and interfered with soil gas collection. A soil sampling probe was used to collect samples of saturated soil in these areas. The samples were analyzed using head space techniques with the GC. The highest level of toluene measured in the saturated soil was 118.2 ppm at SG-7, coincidental with the highest soil gas reading. The concentrations graded to the low part per billion range in an easterly direction. The soil probe sample results are also summarized on Figure 1.

Interviews with plant personnel identified that prior to 1983 parts degreasing had been done outside the facility. Three 55 gallon galvanized steel troughs containing toluene had been staged near an exit door adjacent to the northwest corner of the pond. The location of the degreasing area surrounds sampling point SG-7. Parts were dipped into the container and air dried on pallets nearby. When the toluene was dirty, it was transferred to barrels for disposal for off-site. A pump was provided to workers to accomplish this task. It was not the policy of the company to dump the toluene onto the ground, however there was opportunity for spillage during the filling and emptying of the troughs, dipping and removing the parts, stacking the toluene rinsed parts on the pallets, and worker mishandling of the toluene.

Measured concentrations, and the expected ground water flow direction supports the conclusion that toluene has leached into the ground water and migrated in a direction generally towards the east. The reduced concentrations measured in both soil gas and saturated soil samples suggests that natural attenuation mechanisms of dispersion and degradation of toluene have reduced the levels of concentration dramatically within a hundred feet of the release area.

INTERIM REMEDIAL MEASURES (IRM)

SOURCE AREA REMOVAL

In order to eliminate the continued release of toluene to the ground water, contaminated soil underlying the former degreasing area will be excavated to the water table. The lateral extent of the excavation will be limited by the adjacent buildings and the pond, however, the removal action will be effective in removing a significant portion of the toluene contaminated soil. The vertical extent will be limited by depth to water. Only unsaturated soil will be excavated. Excavation activities will be guided by a Jar Head Space Analysis using a Photoionization Detector, and supported by a field GC. Samples of the remaining side walls of the excavation will be collected for laboratory analysis for toluene prior to backfilling.

Excavated soil will be temporarily stockpiled on ARP property south of the buildings. The property is not used, and is surrounding by open fields. An estimated 150 cubic yards of material will be excavated and stockpiled. The soil will be placed on reinforced plastic sheeting and covered with plastic sheeting, pending analysis for disposal parameters and final disposition to an appropriate disposal/treatment facility.

GROUND WATER MITIGATION

The full extent of ground water contamination is not known, however it is assumed that ground water on the property has been impacted by toluene releases. It is the intent of this IRM to measure the levels of contamination at the property boundary, and install an insitu treatment barrier at the property boundary to prevent further migration.

The in-situ treatment methodology recommended for the IRM is aquifer air sparging. This method injects air into the contaminated zone of the aquifer. Volatile organic compounds are entrained in the air bubbles and carried to the vadose zone. The gases will be allowed to vent naturally to the surface because of the shallow depth of ground water (approximately 5 feet) and the sandy soil present at the site.

Toluene is ideally suited to this technology because of its volatility characteristics, with a Henrys Law constant (K_H) of 6.3×10^{-3} atm-m³/mole. Chemicals with $K_H > 10^{-5}$ are highly susceptible to air stripping. The injected air will also enhance biodegradation of the toluene.

As shown in Figure 2, a row of drive point sparging wells will be installed along the eastern edge of the property to act as a barrier to off-site migration of ground water impacted by toluene. The lateral and vertical extent of contaminated ground water will be assessed during the installation of the sparging points. Concentrations of the ground water will be measured during the installation of the sparging points by developing and sampling the sparge wells at five foot intervals during their installation to a depth of approximately 20 feet.

Starting at a point directly east of the release area wells will be installed on 40 foot centers in a north and south direction. Approximately 10 points will be installed over a 400 foot length of the property boundary. An additional sparging point will be placed immediately east of the release area.

ADDITIONAL INVESTIGATION

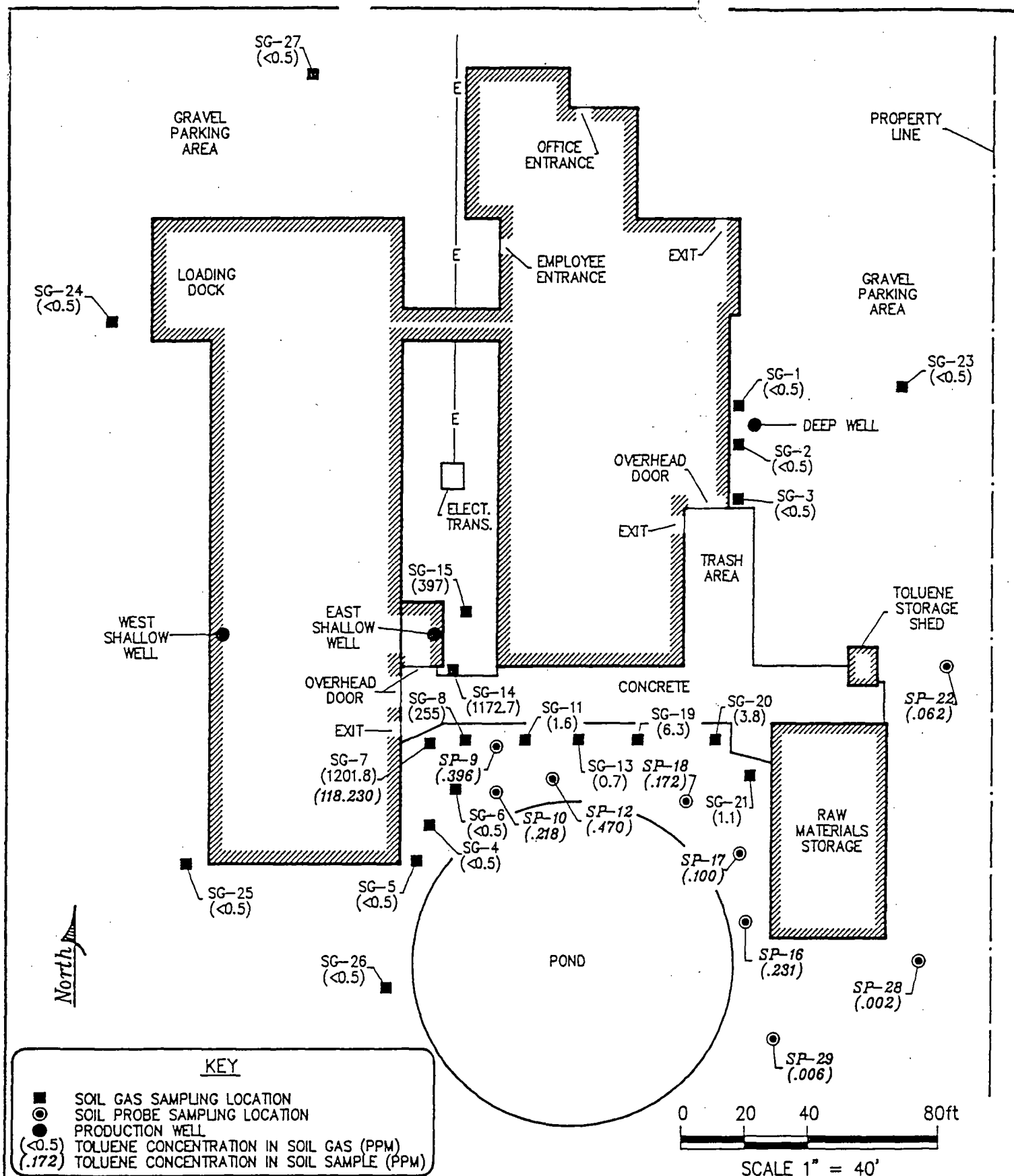
After the sparging system has been installed, the extent of a toluene plume off the property will be assessed. This information will be used to assess the potential impact on downgradient ground water users.

A series of temporary sampling points will be used to collect ground water samples along a line through the center of the contaminant plume in the direction of ground water flow. The samples will be collected using a hydropunch.

FINAL CORRECTIVE ACTION

All information from the investigative effort and the corrective action will be assembled into an assessment report. Based on the concentrations of the toluene in the series of wells, an assessment of need for additional corrective action will be developed. Recommendations for action beyond the IRM effort will be made if necessary. If data supports no further action necessary, a request for no further action will be made.

cc: Gerry Stahnke - MPCA
Mike Connolly - MPCA
Terry Stern - American Rubber Products



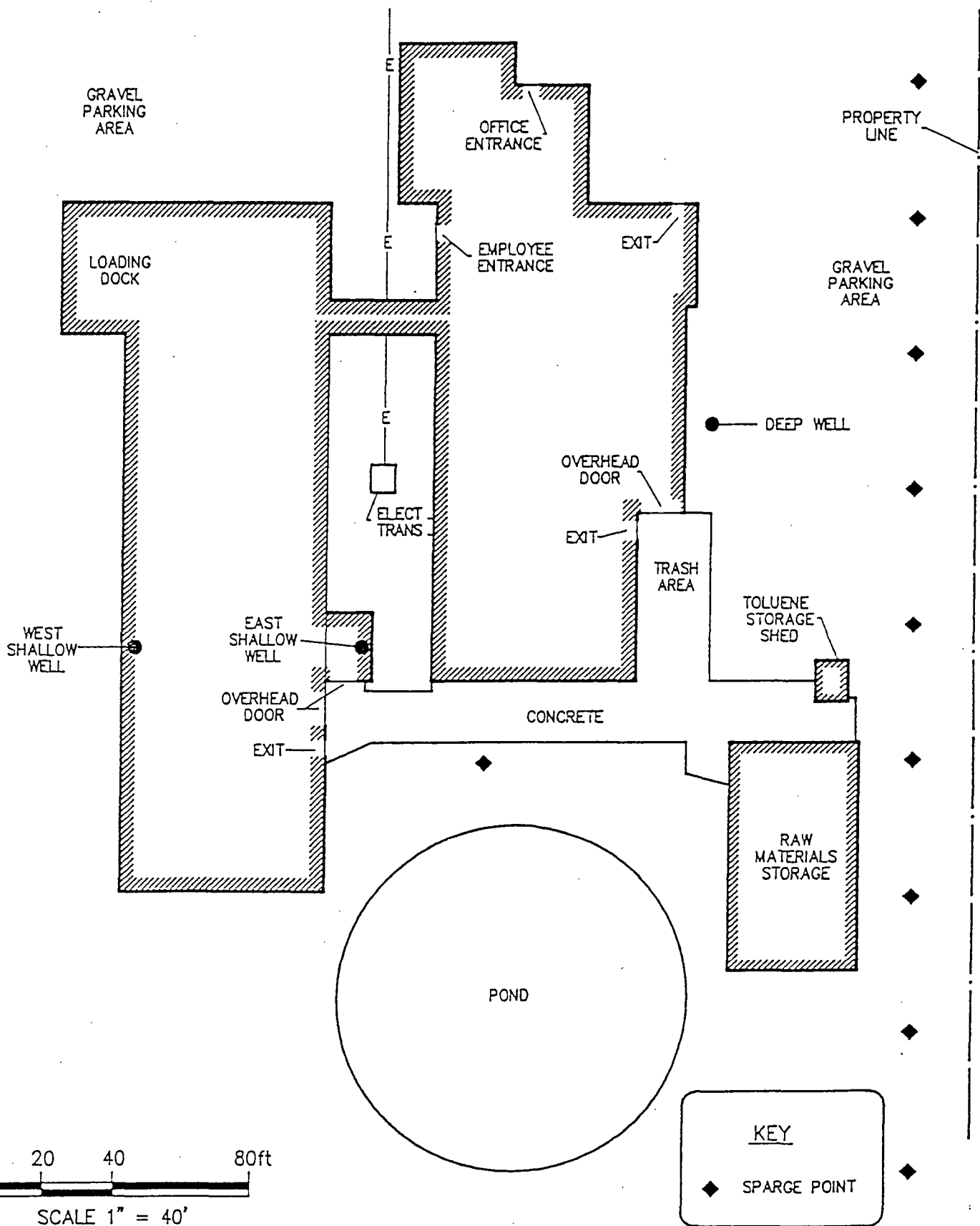
SITE DIAGRAM
AMERICAN RUBBER PRODUCTS COMPANY
STAPLES, MINNESOTA

M980/M91-M28

Nova
Environmental Services, Inc.

FEB - 92

1



SITE DIAGRAM -- PROPOSED SPARGE POINTS
AMERICAN RUBBER PRODUCTS COMPANY
STAPLES, MINNESOTA

M980/M91-M28

Nova
Environmental Services, Inc.

FEB - 92

2

DRAFT TECHNICAL MEMORANDUM

TO: American Rubber Products File

FROM: Bob Havrilak, Nova Environmental Services, Inc.

DATE: March 11, 1992

RE: Results of Groundwater Characterization

The week of March 2, a field crew was mobilized to the American Rubber Products facility to implement the conjunctive Investigation/Corrective Action effort described in the February 26, 1992 Technical Memorandum.

SOURCE AREA EXCAVATION

Approximately 150 cubic yards of soil was removed from the identified source area. Soil was excavated until PID readings on the soil were less than 50 ppm, or until a cultural feature, i.e.: buildings, the pond, or utilities, prevented further excavation. Soil was excavated vertically to the water table. Samples of the side walls of the excavation were collected prior to backfilling for laboratory analyses. The results are unavailable at this time. Samples of water from the bottom of the excavation were tested with a Gas Chromatograph in the field, and yielded toluene measurements in excess of 20,000 ppm. This confirmed the suspicion that groundwater was impacted by toluene handling the former degreasing area. The excavated soil was temporarily stockpiled on the ARP property south of the buildings. The soils were placed on reinforced plastic, and were covered with reinforced plastic. Samples of the soil will be collected and analyzed, prior to the development of a plan for disposal.

GROUNDWATER INVESTIGATION

Eighteen drive points were installed across the northeastern quadrant of the property in an attempt to identify and map the extent of toluene impacted groundwater. The drive points were driven in stages to specified depths, and groundwater samples were collected from each discrete interval. The sample depth locations from which samples were collected are:

Interval	A	at the water table interface
Interval	B	12 to 15 feet,
Interval	C	16 to 19 feet,
Interval	D	21 to 24 feet, and
Interval	E	26 to 29 feet.

The water samples were analyzed in the field with the GC.

The casing elevations of the drive points were surveyed, water levels measured, and groundwater contour maps developed. Chemical characterization of the groundwater identified a zone of toluene contaminated groundwater extending from the source area to the northeast corner of the ARP property. The vertical extent of the impacted groundwater is limited to the upper 20 feet of a surficial aquifer bounded below by a clay layer roughly 50 feet thick starting at approximately 25 to 30 feet below the surface.

The pond elevation was measured at 1.4 feet above the groundwater surface 40 feet away from the pond, and confirms the mounding effect created by discharging cooling water to the pond. Operation of the shallow wells was shown to create a cone of depression in the surficial aquifer, and has probably slowed contamination migration up until 1989 when the deep well was installed in the lower aquifer.

Interpretation of the groundwater maps indicates groundwater in the shallow surficial aquifer is flowing to the Northeast with a hydraulic gradient of approximately 0.005 ft/ft across the ARP property, with the gradient appears to falling near the property edge. The projected flow direction is consistent with the mapped extent of the contaminate plume moving in a northeasterly trend.

The known lateral extent of the contaminated groundwater is a plume roughly 50 feet to 80 feet wide trending N-NE across the property from the source area. The aerial extent of the plume in a northeasterly direction is not known at this time. The projected velocity of groundwater has been approximated to range between 21 feet/year and 200 feet/year. Assuming a worse case scenario of a fifteen year migration period contaminated groundwater could have migrated between 315 feet and 3000 feet off the property in the shallow aquifer, independent of cultural and geologic structure influences. It is an opinion that the approximations of the frontal edge of the plume in the hundreds of feet rather than thousands of feet are realistic expectations.

DEEP WELL CONTAMINATION

Mr. Marv Giza of Giza Plumbing was interviewed to resolve the issue of the coincidental well casing repair and the disappearance of the toluene from water samples taken from the deep well. Apparently the pitless adapter was attached to 6" plastic well casing that had a crack in it. The weight of the drop pipe to the pump, coupled with the motor torque distorted the casing and the crack. The static water level inside the deep well casing has been measured between 30 and 40 feet below the surface. While the pump is operating, the drawdown in the deep well creates a pumping water level greater than 100 feet below the surface. The water table in the shallow water outside the casing would have fluctuated between 4 and 8 feet below the surface, across the interval of the opening created by the crack, allowing water to flow into the casing. If toluene impacted groundwater were present in the area of the well, it would have migrated to, and into the casing. The chemical would subsequently have appeared seasonally in the deep well water samples collected until the casing was repaired or until the water table in the shallow aquifer dropped below the casing crack.

OFFSITE GROUNDWATER MIGRATION

Groundwater in the shallow aquifer is impacted. A preliminary survey of the land usage in the direction of groundwater flow identified the some industrial usage, and the Staples Airport. An evaluation of groundwater usage by the property owners has not been conducted yet to determine potential receptors of a groundwater plume. An investigation will be conducted in the area NE of the ARP property assess the extent of groundwater contamination and potential receptors.



1. LOCATION OF WELL

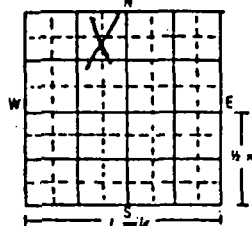
County Name Wadena WATER WELL RECORD MINNESOTA UNIQUE WELL NO.
 Minnesota Statutes 156A.01-08 for Sample

Township Name Thomastown Township Number 134 Range Number 32 Section No. 35 Fraction N 1/2 E 1/4
 Date of Completion 10-20-88

Distance and Direction from Road Intersection or Street Address and City of Well Location

Show exact location of well in section grid with "X."

Sketch map of well location.



Addition Name

Block Number

Lot Number

2. PROPERTY OWNER'S NAME

Address

Stearns Rubber Co
Staples, Minn

56479

3. FORMATION LOG COLOR HARDNESS OF FORMATION FROM TO

<u>Sand</u>	<u>B</u>	<u>S</u>	<u>0</u>	<u>28</u>
<u>Clay</u>	<u>H</u>	<u>H</u>	<u>28</u>	<u>84</u>
<u>Sand</u>	<u>H</u>	<u>S</u>	<u>84</u>	<u>87</u>
<u>Clay</u>	<u>H</u>	<u>M</u>	<u>87</u>	<u>161</u>
<u>Sand (Sticky)</u>	<u>H</u>	<u>S</u>	<u>161</u>	<u>182</u>

4. WELL DEPTH (completed) 182 ft.

5. DRILLING METHOD
☐ Cable tool ☐ Reverse ☐ Driven ☐ Dug
☐ Hollow rod ☐ Air ☐ Bored ☐ 110
☒ Rotary ☐ Jetted ☐ Power auger

6. DRILLING FLUID Bent

7. USE
☐ Domestic ☐ Monitoring ☐ Heat Pump
☐ Irrigation ☐ Public ☒ Industry
☐ Test Well ☐ Municipal ☐ Commercial
☐ Air Conditioning ☐ 110

8. CASING
☐ Black ☐ Threaded HEIGHT Above/Below
☐ Galv. ☐ Welded Surface 1 ft.
☒ Plastic ☐ 60 Drive Shoe? Yes ☒ No
60 in. to 162 ft. Weight 5 lbs./ft. 12 in. to 182
 _____ in. to _____ ft. Weight _____ lbs./ft. _____ in. to _____ ft.
 _____ in. to _____ ft. Weight _____ lbs./ft. _____ in. to _____ ft.

9. SCREEN
 Make Johnson Or open hole from _____ ft. to _____ ft.
 Type Stainless Dis. 4" PS
 Slot/Gauge 12 Length 20'
 Set between 162 ft. and 182 ft. FITTINGS:

10. STATIC WATER LEVEL
30 ft. ☒ below ☐ above land surface Date Measured 10-20-88

11. PUMPING LEVEL (below land surface)
 _____ ft. after _____ hrs. pumping 50 g.p.m.
 _____ ft. after _____ hrs. pumping _____ g.p.m.

12. HEAD WELL COMPLETION
☒ Pitless adapter, manufacturer Maas model 6V-2
☐ Basement offset ☐ At least 12" above ground
☐ Plastic casing protection

13. WELL GROUTED?
☒ Yes ☐ No
☒ Neat Cement ☐ Bentonite ☐ _____
 Grout material Cement from 10 to 40 ft. cu. yds.

14. NEAREST SOURCES OF POSSIBLE CONTAMINATION
100 feet S direction pit type
 Well disinfected upon completion? ☒ Yes ☐ No

15. PUMP
 Date installed _____ ☒ Not installed
 Manufacturer's name _____
 Model number _____ HP _____ Volts _____
 Length of drop pipe _____ ft. capacity _____ g.p.m.
 Material of drop pipe _____
 Type: ☐ Submersible ☐ L.S. Turbine ☐ Reciprocating
☐ Jet ☐ Centrifugal ☐ _____

16. EXISTING WELLS
 Unused well on property? ☐ Yes ☒ No
 Abandoned ☐ Permanent ☐ Temporary ☐ Not sealed

18. WATER WELL CONTRACTORS CERTIFICATION
 This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

Northland Drilling 49392
 License Business Name License No.
 Address RT1 Randall, Minn 56475
 Signed Robert Hines Date 7-9-91
Scott Farguecker Date 7-9-91
 Authorized Representative Name of Driller

17. REMARKS, ELEVATION, SOURCE OF DATA, etc.

AMERICAN
 RUBBER PRODUCTS

WORK COPY

RECEIVED

JUL 11 1991

County Name		Wadena		TOWNSHIP				RANGE				SECTION				FRACTION				WATER WELL RECORD				for Water Sample				155141			
Township Name		134		33		35		SE		NW																					
Distance and Direction from Road Intersections or Street Address and City of Well Location																															
Show exact location of well in section grid with "X."																															
Sketch map of well location.																															
Addition Name																															
Block Number																															
Lot Number																															
134-33-356																															
1 mile																															
2. FORMATION LOG																															
Clay																															
Brown																															
H																															
0																															
20																															
Clay																															
Gray																															
H																															
20																															
47																															
Gravel & Clay																															
H																															
47																															
57																															
Clay																															
Gray																															
S																															
57																															
70																															
DRILLED TO 70'																															
COMPLETED 59'																															
134-33-35 BCDDDA																															
Elev. 1293±5																															
214-A																															
A-QBAA																															
LOCATED BY																															
1 - <input type="checkbox"/> Address Verification																															
2 - <input checked="" type="checkbox"/> Name on Mailbox																															
3 - <input type="checkbox"/> Lot-Block																															
4 - <input type="checkbox"/> Plat Book																															
5 - <input type="checkbox"/> Info. From Owner																															
6 - <input type="checkbox"/> Info. From Neighbor																															
7 - <input type="checkbox"/> Other																															
<input type="checkbox"/> Can't Locate State Why																															
3. PROPERTY OWNER'S NAME																															
Richard Otteson																															
R 2																															
Staples, Minnesota																															
45 I																															
4. WELL DEPTH (completed)																															
59																															
Date of Completion																															
8-3-77																															
5. <input type="checkbox"/> Cable tool <input type="checkbox"/> Reverse <input type="checkbox"/> Driven <input type="checkbox"/> Dug																															
<input type="checkbox"/> Hollow rod <input type="checkbox"/> Air <input type="checkbox"/> Bored																															
<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Jetted <input type="checkbox"/> Power Auger																															
6. USE																															
<input checked="" type="checkbox"/> Domestic <input type="checkbox"/> Public Supply <input type="checkbox"/> Industry																															
<input type="checkbox"/> Irrigation <input type="checkbox"/> Municipal <input type="checkbox"/> Commercial																															
<input type="checkbox"/> Test Well <input type="checkbox"/> Air Conditioning <input type="checkbox"/>																															
7. CASING																															
<input checked="" type="checkbox"/> Black <input type="checkbox"/> Threaded																															
<input type="checkbox"/> Galv. <input checked="" type="checkbox"/> Welded																															
<input type="checkbox"/> Drive Shaft Yes No <input checked="" type="checkbox"/>																															
4 in. to 48 ft. Weight 11 lbs. ft.																															
8. SCREEN																															
Make Johnson																															
Type stainless steel																															
Slot/Gauge 15																															
Set between 49 ft. and 53.5 ft.																															
53.5 ft. and 58 ft.																															
9. STATIC WATER LEVEL																															
14																															
10. PUMPING LEVEL (below land surface)																															
30 ft. after 1 hrs. pumping																															
20 ft. after 20 hrs. pumping																															
11. WELL HEAD COMPLETION																															
<input checked="" type="checkbox"/> Pitless adapter <input type="checkbox"/> Basement offset <input type="checkbox"/> At least 12" above																															
12. Well grouted?																															
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																															
<input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input checked="" type="checkbox"/> Bit. fill																															
13. Nearest sources of possible contamination																															
50 feet																															
septic																															
14. PUMP																															
Date Installed																															
Not Installed																															
Manufacturer's Name																															
Model Number																															
Length of drop pipe																															
Material of drop pipe																															
Type: <input type="checkbox"/> Submersible <input type="checkbox"/> L.S. Turbine <input type="checkbox"/> Reciprocating																															
<input type="checkbox"/> Jet <input type="checkbox"/> Centrifugal <input type="checkbox"/>																															
15. WATER WELL CONTRACTOR'S CERTIFICATION																															
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.																															
Diamond Water Wells, Inc.																															
18156																															
Address Box 755, Brainerd, Minn. 56401																															
Signed Gary Jensen																															
Authorized Representative																															
Name of Driller																															
Date																															
MINN. GEOLOGICAL SURVEY COPY																															
5/74 30M																															
7/74 10M																															

108

Wadeng Co
~~Wadeng Co~~

226148

Bid Proposal
for well on
Staples Industrial Park

Testwell

TW

SAME AS one of
AAmots test holes

Log of test hole by Aamot Well Drilling Co.
Driller Duane Kingsley - 10-21-70

- 0' - 28' Fine Sand ----- Water table approximately 3.0'
- 28' - 35' Grey Clay
- 35' - 46' Gravel & Sand (possibly best aquifer)
- 46' - 58' Sandy Clay
- 58' - 156' Hard Pan
- 156' - 203' Clay Grey and Sandy
- 203' - 209' Shale & decomposed Granite
- 209' - 212' Granite

Wadeng Co

214-A

1072 1078

No

134-33-35 ACCUBA
Elev. 1281±5
214-A

LOCATED BY	
1	<input type="checkbox"/> Address Verification
2	<input type="checkbox"/> Name on Mailbox
3	<input type="checkbox"/> Lot Block
4	<input type="checkbox"/> Plat Book
5	<input type="checkbox"/> Info. From Owner
6	<input type="checkbox"/> Info. From Neighbor
7	<input checked="" type="checkbox"/> Other <u>city engineers</u>
	<input type="checkbox"/> Can't Locate. State Why

Be back encountered @ 203'
Borehole - KRET
open from KRET - PCCR

100/1000 screen → either Brass screen to fit over sample or 5' of screen & Bad Pipe →

227' sand sample 22
230'

240
sand 1'
241
yellow clay 6

247
← Coarse gravel
250

STAPLES WELL LOG

Aamot Well Drilling Co., Inc.

Todd Co.

Well Owner: Staples Vocational School

Location: Test hole #8 Staples airport

Date Completed: 1-31-70 Driller: Daniel A. Aamot

Depth	Description of Formation
0' to 25'	fine sand
25' to 35'	very clay
35' to 46'	gravel & sand
46' to 56'	sandy clay
56' to 156'	hard an
156' to 203'	clay - very sandy
203' to 209'	shale & decomposed granite
209' to 212'	granite
to	
to	

Wadena Co.

SAME AS 108

1270
209
106-1

SIZES AND MATERIALS USED

Top Casing Line: Inside Diameter _____ in. Wt. per ft. _____ lbs.
Depth _____ ft. _____ in.

Any Reduced Casing Sizes _____

Total Depth to bottom of Casing _____ ft. _____ in.

Total Depth to bottom of Well _____ ft. _____ in.

Depth measured from: _____ Water level: _____

Screened Well: Size of Screen: Diam. _____ in. Length _____ ft. Slot _____

Make of Screen _____ Metal _____

Fittings _____

Rock Well: Open Borehole _____ inches diam. _____ ft. deep below casing

Test data: _____ (gpm) _____ ft. drawdown. Pumped for _____ hrs.
(gph)

Test Pump: _____

Tot. Len. of Setting: _____

NOTES: _____

LOCATED BY

- 1 - ☐ Address Verification
- 2 - ☐ Name on Mailbox
- 3 - ☐ Lot-Block
- 4 - ☐ Plat Book
- 5 - ☐ Info. From Owner
- 6 - ☐ Info. From Neighbor
- 7 - ☐ Other _____
- ☐ Can't Locate State Why

Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 10-17-91

Time 1300 a.m. p.m.

Direction EAST

Weather PARTLY CLOUDY, ~40°F

Photographed by: SFAGER

Sample ID # SP-1

Description SAMPLE TAKEN

FROM ON-SITE, SAND POINT

WELL #1, ANALYZED BY

MN. DEPT. OF HEALTH.



Site STERN RUBBER & TOOL CO.

EPA # MND 045973419

Date 10-17-91

Time 1330 a.m. p.m.

Direction EAST

Weather PARTLY CLOUDY,

~40°F

Photographed by: S.A.-MEGER

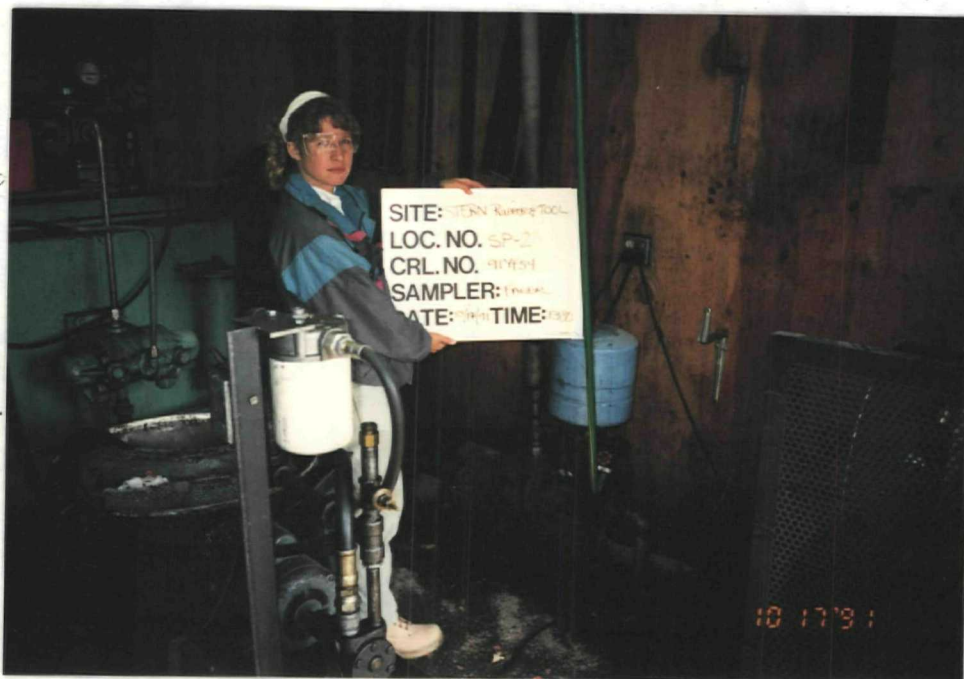
Sample ID# SP-2

Description SAMPLE TAKEN

FROM ON-SITE, SAND POINT

WELL #2, ANALYZED BY

MN. DEPT. OF HEALTH.



Site STERN RUBBER AND TOOL CO.

EPA # MND 045 973 419

Date 8-8-92

Time 1430 a.m. p.m.

Direction _____

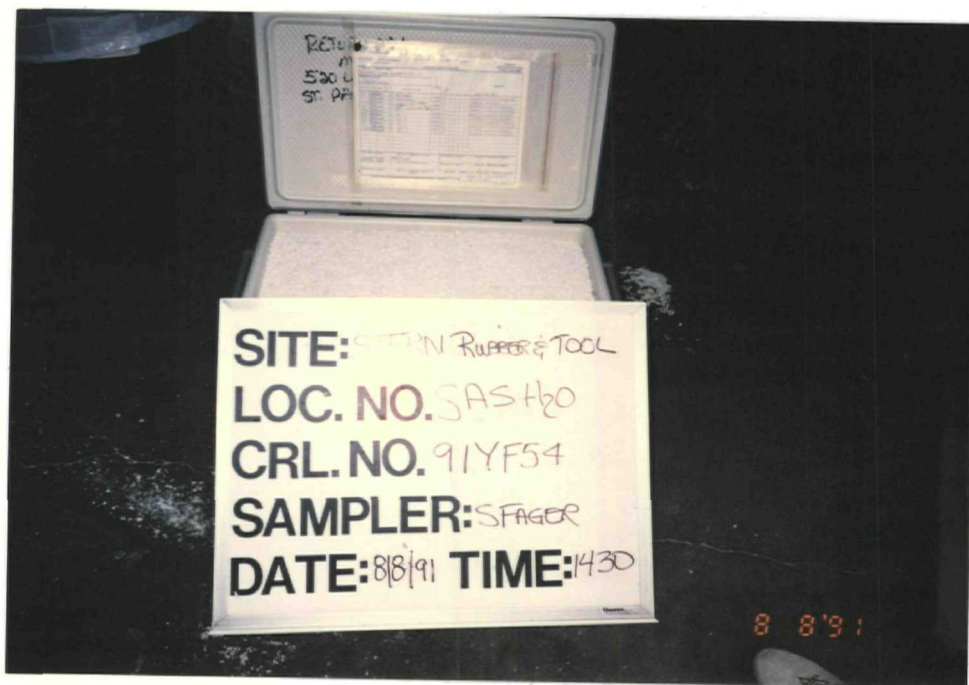
Weather _____

Photographed by: S.A. MEGER

Sample ID # _____

Description SAS WATER SAMPLES

PACKED AND READY FOR SHIPMENT.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 10/17/91

Time 1135 a.m. p.m.

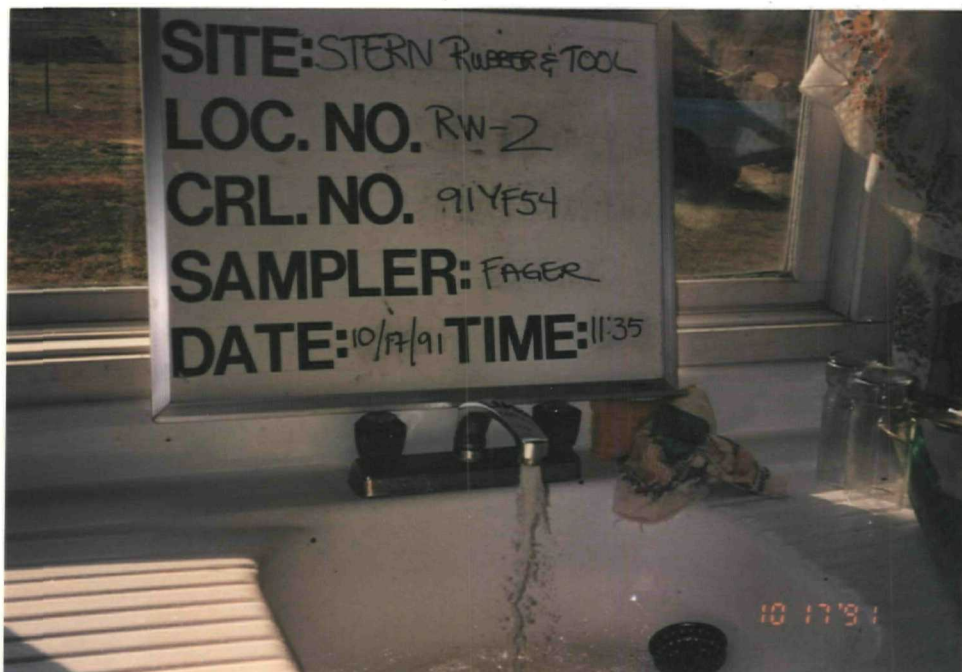
Direction SOUTH

Weather PARTLY CLOUDY; 140°F

Photographed by: SFAGER

Sample ID # RW-2

Description SAMPLE TAKEN
FROM KITCHEN FAUCET, ANALYZED
FOR COLIFORM BACTERIA AND
NITRATES + NITRITES.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 10-17-91

Time 1200 a.m. p.m.

Direction NORTH

Weather PARTLY CLOUDY, u 40°F

Photographed by: S. FAGER

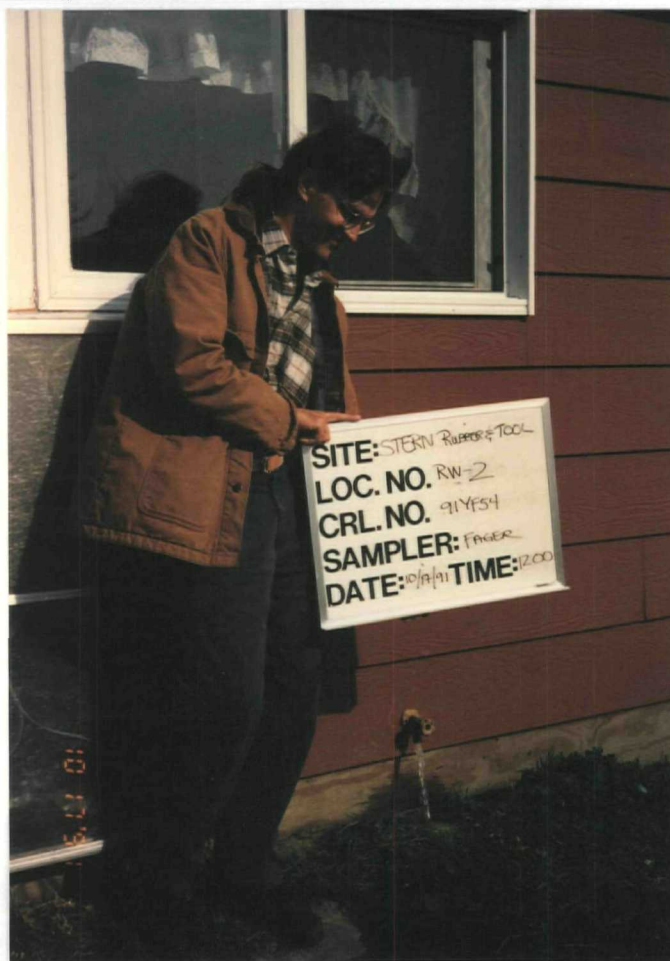
Sample ID # RW-2

Description SAMPLE TAKEN

FROM OUTDOOR FAUCET; ANALYZED

FOR VOC'S, THROUGH MINNESOTA

DEPARTMENT OF HEALTH - RESAMPLE
OF RESIDENTIAL WELL #2.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 10-17-91

Time 1230 a.m. p.m.

Direction _____

Weather PARTLY CLOUDY, u 40°F

Photographed by: S. A. MEGER

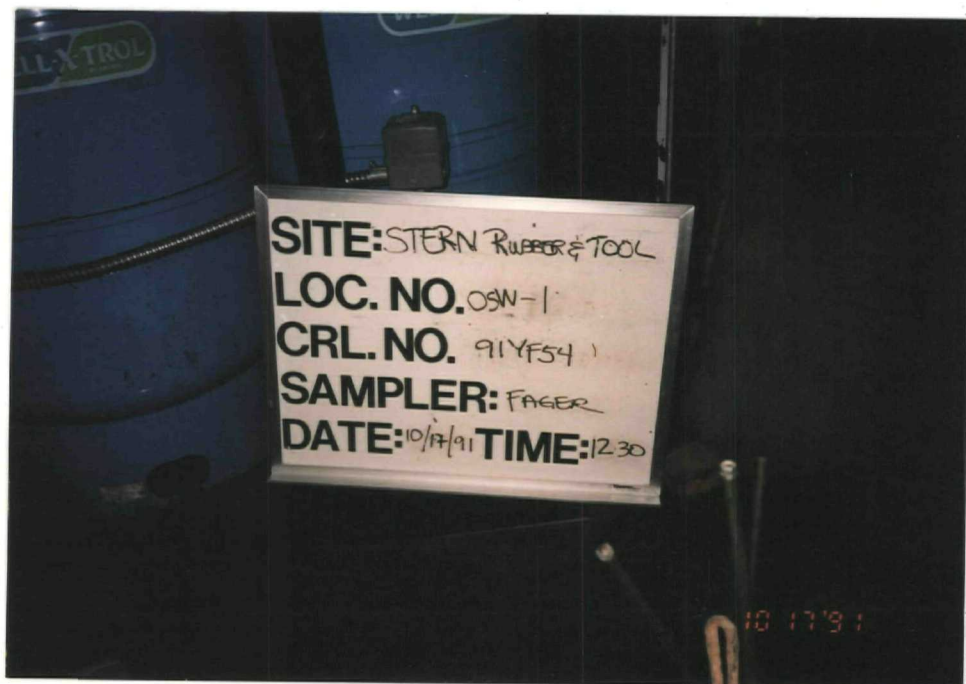
Sample ID# OSW-1

Description RESAMPLE OF

ON-SITE WELL #1; ANALYZED

BY MINNESOTA DEPARTMENT

OF HEALTH.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973419

Date 8-7-91

Time 0915 a.m. p.m.

Direction SOUTH WEST

Weather OVERCAST; ~50°F

Photographed by: SFRAGER

Sample ID # S15

Description CLOSE-UP,

BACKGROUND SEDIMENT

SAMPLE S15.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973419

Date 8-7-91

Time 0915 a.m. p.m.

Direction SOUTHWEST

Weather OVERCAST,

~50°F

Photographed by: SFRAGER

Sample ID # S15

Description PERSPECTIVE,

BACKGROUND SEDIMENT SAMPLE

S15.



Site STERN RUBBER & TOOL CO.

Site STERN RUBBER & TOOL CO.

EPA # MND045 973419

Date 8-7-91

Time 1030 a.m. p.m.

Direction _____

Weather OVERCAST, 1150°F

Photographed by: SFAGER

Sample ID # S14

Description CLOSE-UP OF

ON-SITE SEDIMENT SAMPLE

S12, FROM DISCHARGE POND.



Site STERN RUBBER & TOOL CO.

EPA # MND045 973419

Date 8-7-91

Time 1030 a.m. p.m.

Direction NORTHEAST

Weather OVERCAST, 1150°F

Photographed by: SFAGER

Sample ID# S14

Description PERSPECTIVE, ON-

SITE SEDIMENT SAMPLE S14,

FROM DISCHARGE POND.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-7-91

Time 1015 a.m. p.m.

Direction NORTHEAST

Weather OVERCAST; 1150°F

Photographed by: SFAGER

Sample ID # S10

Description PERSPECTIVE, SAMPLE

10 TAKEN FROM ON-SITE COOLING

WATER DISCHARGE POND.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-7-91

Time 1025 a.m. p.m.

Direction NORTHEAST

Weather OVERCAST; 1150°F

Photographed by: SFAGER

Sample ID# S11

Description CLOSE-UP, SAMPLE

S10 TAKEN FROM PIPE THAT

DISCHARGES COOLING WATER

TO ON-SITE POND.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-7-91

Time 1025 a.m. p.m.

Direction NORTHEAST

Weather OVERCAST; 1150°F

Photographed by: SFAGER

Sample ID # S11

Description PERSPECTIVE, SAMPLE

11, TAKEN FROM COOLING WATER

DISCHARGE PIPE TO ON-SITE

POND.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-7-91

Time 1115 a.m. p.m.

Direction _____

Weather OVERCAST; 1150°F

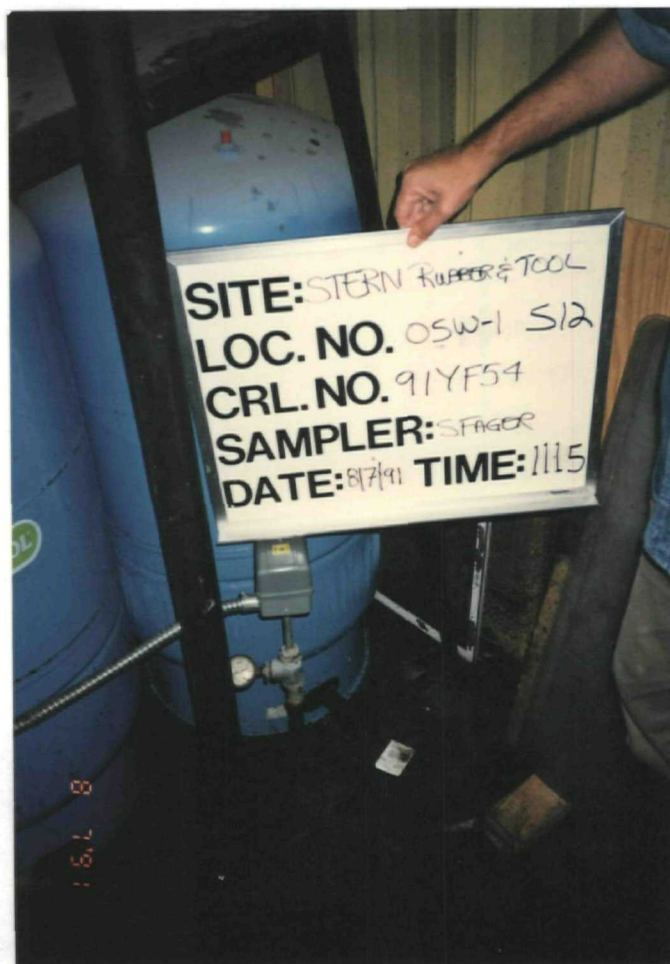
Photographed by: SFAGER

Sample ID# S12

Description CLOSE-UP SAMPLE

12, TAKEN FROM ON-SITE,

DEEP WELL.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-6-91

Time 2015 a.m. p.m.

Direction SOUTHWEST

Weather W 50°F OVER-

CAST

Photographed by: S.A. - MEGER

Sample ID # 509

Description PERSPECTIVE, SAMPLE
509, STAPLES AIRPORT, MONITORING

WELL #1.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-7-91

Time 0930 a.m. p.m.

Direction WEST

Weather OVERCAST; W 50°F

Photographed by: S. FAGER

Sample ID # NONE

Description PRAIRIE AVE, SAMPLE
507 TAKEN FROM SMALL BUILDING
IN FRONT OF BARN.



NOTE: STERN RUBBER & TOOL IS NOW!
= AMERICAN RUBBER PRODUCTS CORP.

Site STERN RUBBER & TOOL CO.

EPA # MND 045973 419

Date 8-7-91

Time 0930 a.m. p.m.

Direction SOUTH

Weather OVERCAST; ~ 50°F

Photographed by: S. FAGER

Sample ID # NONE TAKEN

Description FRONT OF STERN

RUBBER & TOOL BUILDING.



Site STERN RUBBER & TOOL CO.

EPA # MND 045973 419

Date 8-7-91

Time 1015 a.m. p.m.

Direction NORTHEAST

Weather OVERCAST; ~ 50°F

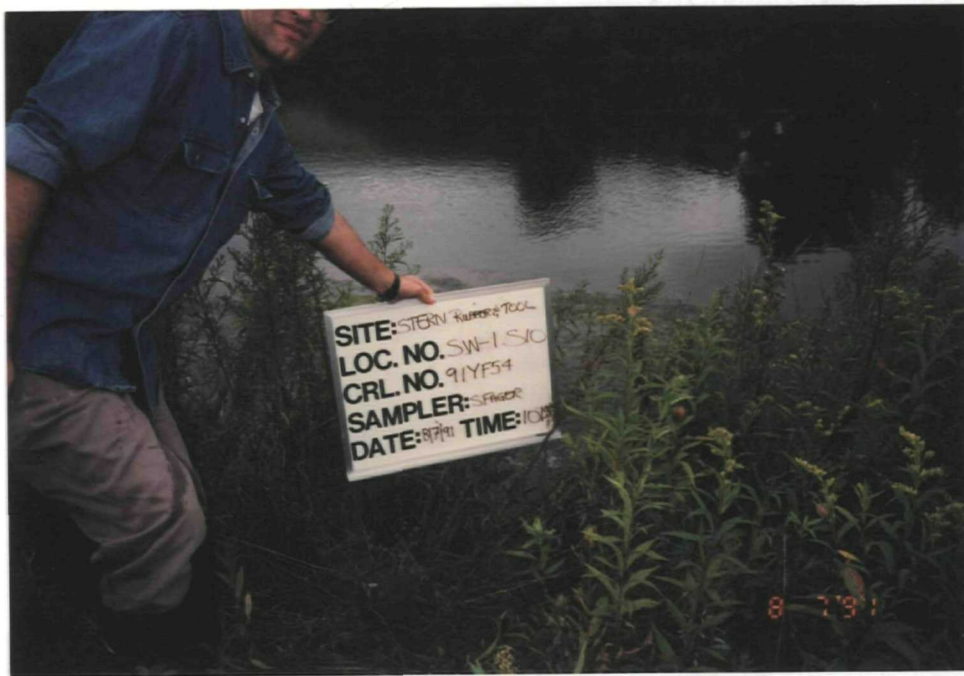
Photographed by: S. FAGER

Sample ID # S10

Description SAMPLE FROM

ON-SITE COOLING WATER

DISCHARGE POND. (CLOSE-UP)



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-6-91

Time 1725 a.m. p.m.

Direction NORTH EAST

Weather SUNNY, 116° F

Photographed by: S.A. - MEGER

Sample ID # SO7

Description PERSPECTIVE, SAMPLE

SO7, RESIDENTIAL WELL #7;

WELL HOUSE



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-6-91

Time 2010 a.m. p.m.

Direction SOUTH WEST

Weather 115° F, CLOUDY

Photographed by: S.A. - MEGER

Sample ID # D02

Description BALLER BURN, STAPLES

AIRPORT MONITORING WELL #1



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 2010 a.m. p.m.

Direction SOUTH WEST

Weather u 50°F,

OVERCAST

Photographed by: S. A. MEGER

Sample ID # DO2

Description PERSPECTIVE,

BALLER BLANK, STAPLES AIRPORT

MONITORING WELL #1. CAR IN

BACKGROUND ON PRAIRIE AVE.



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 2015 a.m. p.m.

Direction SOUTH WEST

Weather u 50°F, OVER-

CAST

Photographed by: S. A. MEGER

Sample ID # SO9

Description SAMPLE FROM

STAPLES AIRPORT, MONITORING

WELL #1, CLOSE-UP



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1650 a.m. p.m.

Direction SOUTH

Weather SUNNY, 1160°F

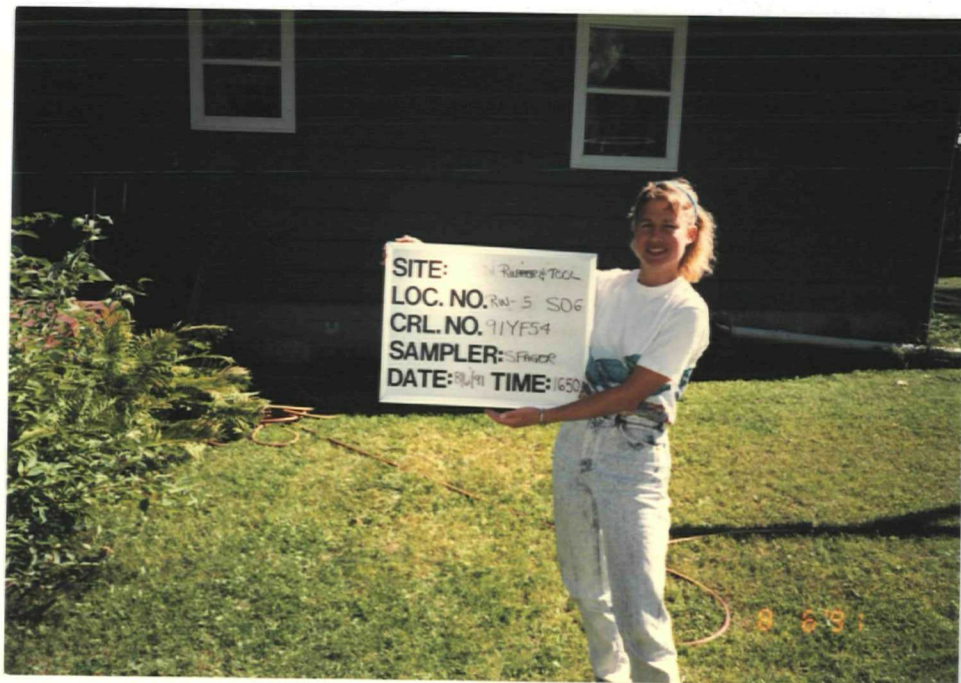
Photographed by: S. A. MEGER

Sample ID # S06

Description PERSPECTIVE,

SAMPLE S06, RESIDENTIAL

WELL # 5



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1725 a.m. p.m.

Direction NORTH

Weather SUNNY, 1160°F

Photographed by: S. FAGER

Sample ID # S07

Description CLOSE-UP, SAMPLE

S07, RESIDENTIAL WELL # 7



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1515 a.m. p.m.

Direction EAST

Weather SUNNY, 116°F

Photographed by: S.A. - MEGER

Sample ID # S05

Description PERSPECTIVE, SAMPLE

S05, RESIDENTIAL WELL #4

NOTE: TIME OF SAMPLE SHOULD

BE 1515



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1650 a.m. p.m.

Direction SOUTH

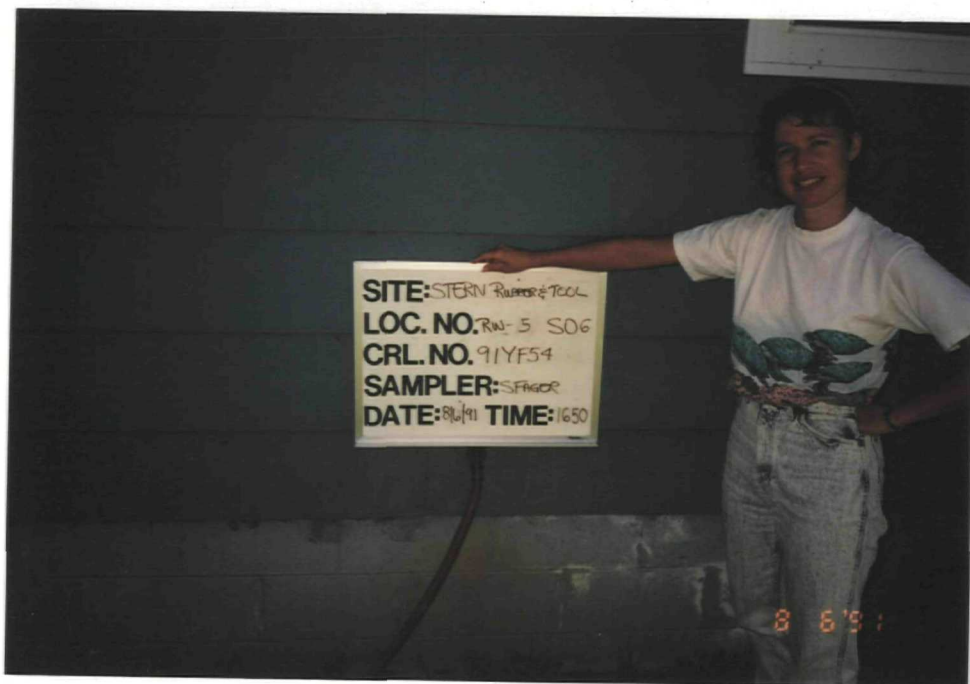
Weather SUNNY, 116°F

Photographed by: S.A. - MEGER

Sample ID # S06

Description CLOSE-UP, SAMPLE

S06, RESIDENTIAL WELL #5



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1145 a.m. p.m.

Direction NORTHEAST

Weather SUNNY, 160°F

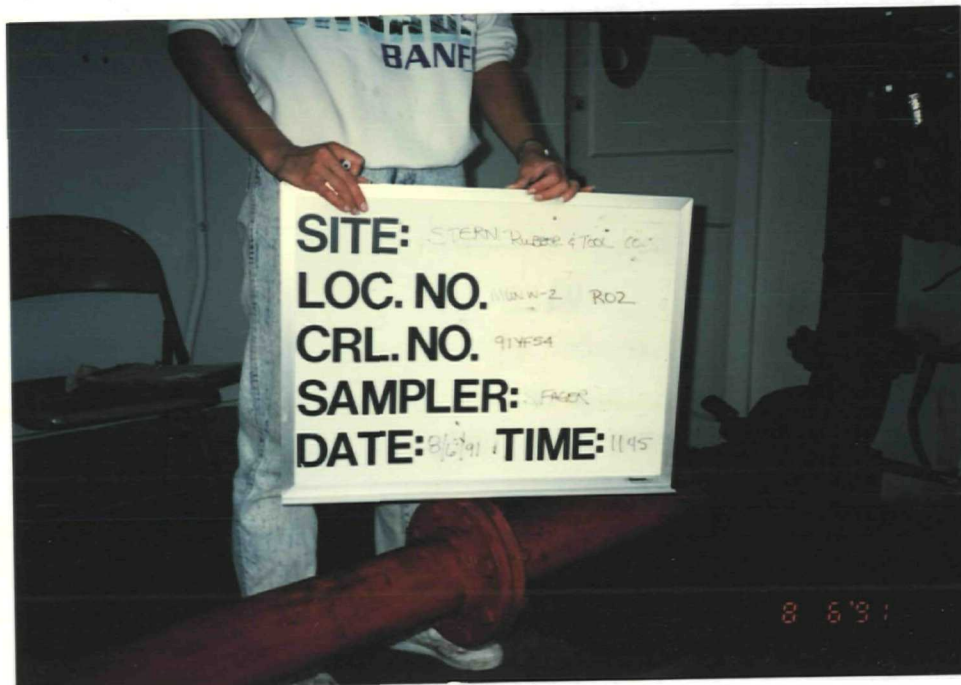
Photographed by: SAMEGER

Sample ID # RO2

Description CLOSE-UP

FIELD BLANK, STEWARTVILLE

MUNICIPAL WELL #2



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1200 a.m. p.m.

Direction NORTHEAST

Weather SUNNY, 160°F

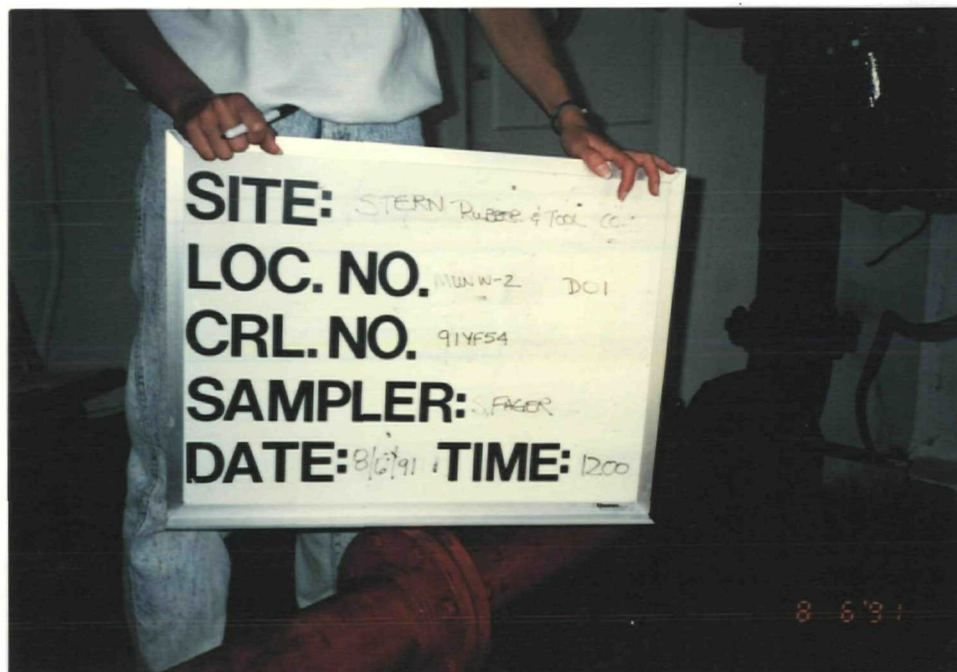
Photographed by: S.A-MEGER

Sample ID# DO1

Description CLOSE UP

DUPLICATE OF SAMPLE SD1,

STAPLES MUNICIPAL WELL #2



Site STERN RUBBER & TOOL CO.

EPA # MND045 973 419

Date 8-6-91

Time 1200 a.m. p.m.

Direction NORTH

Weather SUNNY, 60°F

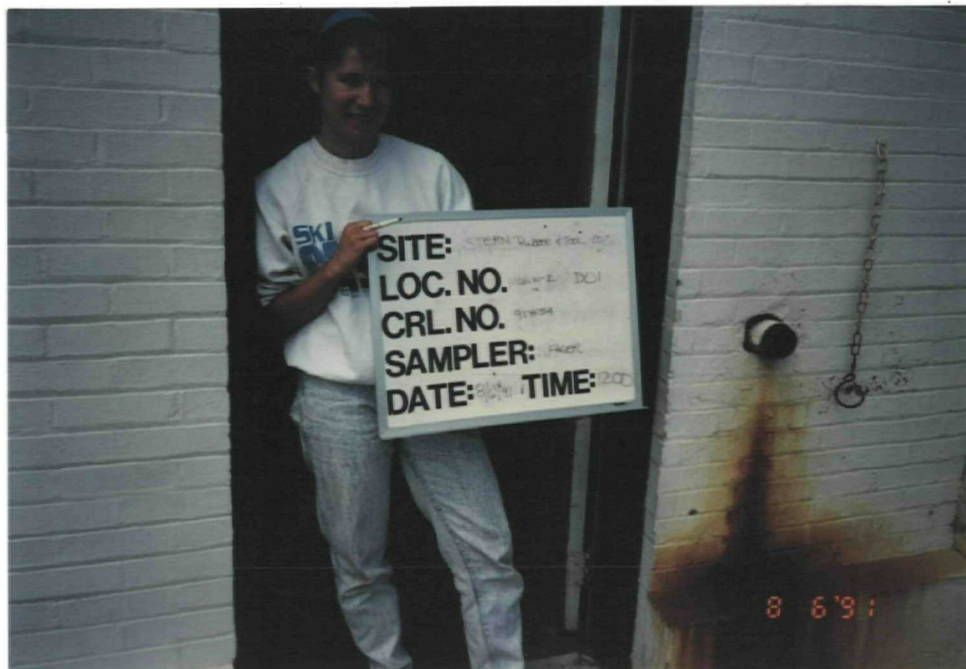
Photographed by: S. A-MERGER

Sample ID # DOI

Description PERSPECTIVE,

DUPLICATE OF SO1, STEWART-

VILLE MUNICIPAL WELLHOUSE.



Site STERN RUBBER & TOOL CO.

EPA # MND045 973 419

Date 8-6-91

Time 1210 a.m. p.m.

Direction NORTHEAST

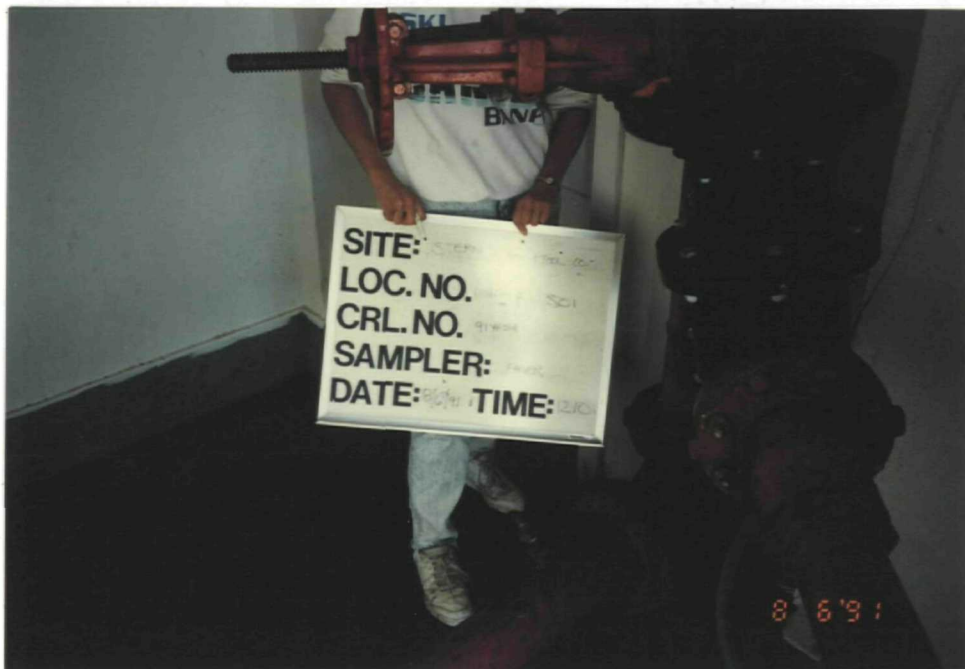
Weather SUNNY, 60°F

Photographed by: S. A-MESER

Sample ID# SO1

Description CLOSE-UP, SAMPLE

SO1, STAPLES MUNICIPAL WELL#2.



Site STERN RUBBER & TOOL CO.

EPA # MND 045973419

Date 8-6-91

Time 1615 a.m. p.m.

Direction NORTHEAST

Weather SUNNY, 11600 F

Photographed by: S FAGER

Sample ID # SD3

Description PERSPECTIVE, SAMPLE

SD3, RESIDENTIAL WELL #2



Site STERN RUBBER & TOOL CO.

EPA # MND 045973419

Date 8-6-91

Time 1445 a.m. p.m.

Direction EAST

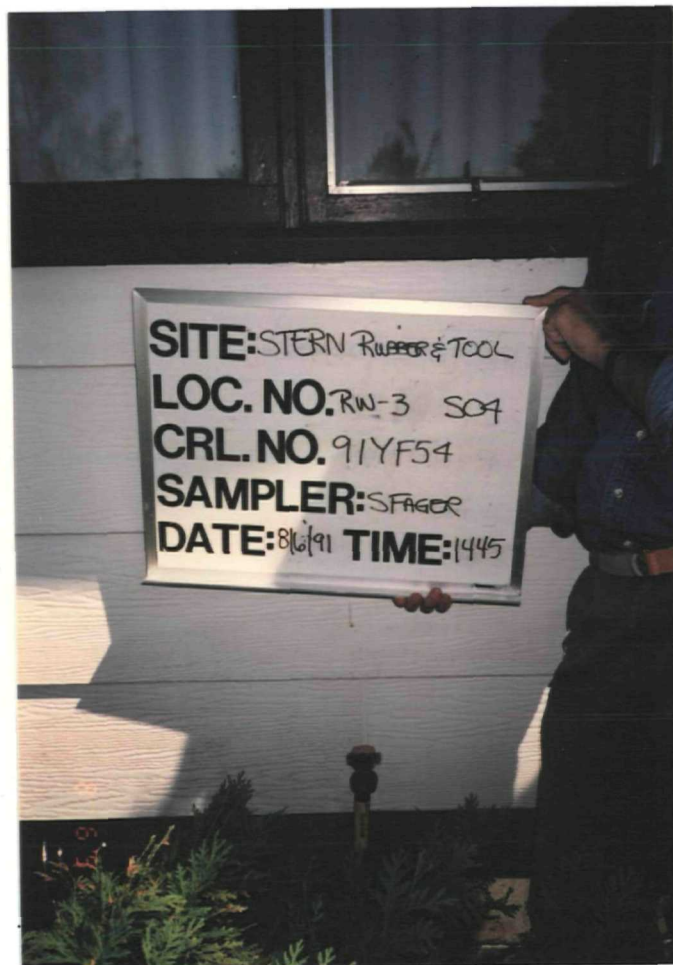
Weather SUNNY, 11600 F

Photographed by: S FAGER

Sample ID # SD4

Description CLOSE-UP, SAMPLE

SD4, RESIDENTIAL WELL #3



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1445 a.m. p.m.

Direction EAST

Weather SUNNY, 15 60°F

Photographed by: SFAGER

Sample ID # S04

Description PERSPECTIVE, SAMPLE

S04, RESIDENTIAL WELL #3



Site STERN RUBBER & TOOL CO.

EPA # MND045973419

Date 8-6-91

Time 1515 a.m. p.m.

Direction EAST

Weather SUNNY, 15 60°F

Photographed by: S.A. MEEGER

Sample ID # S05

Description CLOSE-UP, SAMPLE

S05, RESIDENTIAL WELL #4

NOTE: TIME OF SAMPLE

SHOULD BE 1515.



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-6-91

Time 1355 a.m. p.m.

Direction WEST

Weather SUNNY, 160° F

Photographed by: S. FAGER

Sample ID # 502

Description PERSPECTIVE,

SAMPLE 502, RESIDENTIAL WELL

#1



Site STERN RUBBER & TOOL CO.

EPA # MND 045 973 419

Date 8-6-92

Time 1615 a.m. p.m.

Direction NORTH

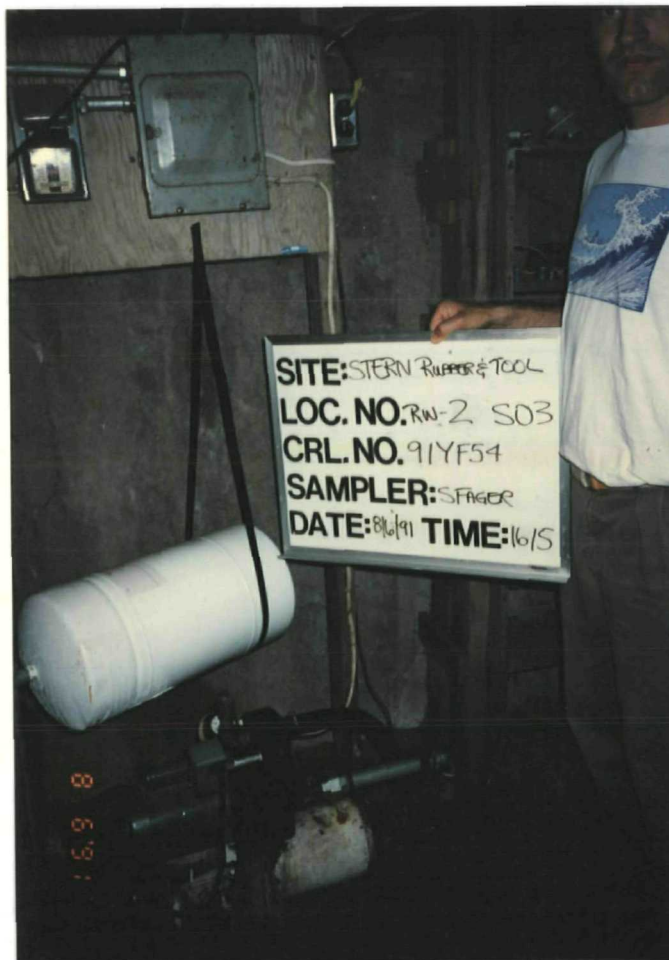
Weather SUNNY, 160° F

Photographed by: S. FAGER

Sample ID# 503

Description CLOSE UP, SAMPLE

503 FROM RESIDENTIAL WELL #2.



Site STERN RUBBER & TOOL CO.

EPA # MND 045973419

Date 8-6-91

Time 12:10 a.m. p.m.

Direction NORTH

Weather SUNNY, ~60°F

Photographed by: S. ANDERSON-MESSER

Sample ID # SO1

Description PERSPECTIVE; SAMPLE
SO1, STAPLES MUNICIPAL WELL #2,
MUNICIPAL WELL HOUSE



Site STERN RUBBER & TOOL CO.

EPA # MND 045973419

Date 8-6-91

Time 1355 a.m. p.m.

Direction WEST

Weather SUNNY, ~60°F

Photographed by: S. FAGER

Sample ID# SO2

Description CLOSE UP, RESIDENTIAL
WELL #1; SAMPLE SO2



- MONITORI WELL SAMPLING/STABILIZATION FL -
MPCA Site Assessment Unit

Site Inspection: Stern Rubber & Tool
 Date: 8-6-91 Time: 18:15 Weather: cloudy, 70's, breeze
 Field staff: Steven Anderson - Mager, Sue Fager
 Well name/location: MW-1 Southwest of Airport
 Contact name/phone: Ron Selvy - City of Staples (218) 894-2550
 Well condition: locked? yes no damage? yes no
 key #: A432 casing material: PVC

Vapor reading at well mouth: initial 0 ppm final 0 ppm
 Well casing diameter: 4 in Casing stick-up: ft

(A) well depth from t.o.c.: 20.80 ft

(B) depth to water from t.o.c.: 6.77 ft A - B = 14.11 ft

(C) 0.163 gal/ft for 2" well; 0.653 gal/ft for 4" well

Saturated casing volume: 9.20 gals = [(A - B) x C]

Purge method: boiler-tetlon Vapor reading of purge water: 0 ppm

Pump rate or method to measure purge volume: 4 gallon bucket

Well volume #	Time	Temperature (degree C) +/- 0.5	Conductance (umhos/cm) +/- 5% of range	pH (unit) +/- 0.1	Water depth (ft)	Purge volume (gal)
1	1910	?	310	7.55	-	9
2	1930	11.0	309	7.55	-	18
3	1955	11.5	315	7.75	-	27
4						
5						

Start time: Stop time: Duration:

Total gallons purged: 27 gals Total well volumes purged: 3

Purge water color/turbidity/odor: clear, no odors

Sampling method: Filtered? yes no

Sample#s/Type: VOA's SO9 spike MON W-1

Comments: DO2 duplicate RO3 trip blank
RO4 boiler blank

TARGET COMPOUND LIST (TCL)

TARGET ANALYTE LIST (TAL)

AND

CONTRACT REQUIRED

QUANTITATION LIMITS (CRQL)

Special Analytical Services (SAS)
 TARGET COMPOUND LIST (TCL) AND
 CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Volatiles	CAS Number	Quantitation Limits
		<u>Water</u> μg/L
1. Chloromethane	74-87-3	1
2. Bromomethane	74-83-9	1
3. Vinyl Chloride	75-01-4	1
4. Chloroethane	75-00-3	1
5. Methylene Chloride	75-09-2	2
6. Acetone	67-64-1	5
7. Carbon Disulfide	75-15-0	1
8. 1,1-Dichloroethene	75-35-4	1
9. 1,1-Dichloroethane	75-34-3	1
10. cis-1,2-Dichloroethene	156-59-4	1
11. trans-1,2-Dichloroethene	156-60-5	1
12. Chloroform	67-66-3	1
13. 1,2-Dichloroethane	107-06-2	1
14. 2-Butanone	78-93-3	5
15. Bromochloromethane	74-97-5	1
16. 1,1,1-Trichloroethane	71-55-6	1
17. Carbon Tetrachloride	56-23-5	1
18. Bromodichloromethane	75-27-4	1
19. 1,2-Dichloropropane	78-87-5	1
20. cis-1,3-Dichloropropene	10061-01-5	1
21. Trichloroethene	79-01-6	1
22. Dibromochloromethane	124-48-1	1
23. 1,1,2-Trichloroethane	79-00-5	1
24. Benzene	71-43-2	1
25. trans-1,3-Dichloropropene	10061-02-6	1
26. Bromoform	75-25-2	1
27. 4-Methyl-2-pentanone	108-10-1	5
28. 2-Hexanone	591-78-6	5
29. Tetrachloroethene	127-18-4	1

TARGET COMPOUND LIST (TCL) AND
CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)
(CONT'D.)

Volatiles	CAS Number	Quantitation Limits
		Water µg/L
30. 1,1,2,2-Tetrachloroethane	79-34-5	1
31. 1,2-Dibromoethane	106-93-4	1
32. Toluene	108-88-3	1
33. Chlorobenzene	108-90-7	1
34. Ethylbenzene	100-41-4	1
35. Styrene	100-42-5	1
36. Xylenes (total)	1330-20-7	1
37. 1,3-Dichlorobenzene	541-73-1	1
38. 1,4-Dichlorobenzene	106-46-7	1
39. 1,2-Dichlorobenzene	95-50-1	1
40. 1,2-Dibromo-3-chloropropane	96-12-8	1

TARGET COMPOUND LIST (TCL) AND
CONTRACT REQUIRED QUANTITATION LIMITS (CROL)
 (CONT'D.)

Semivolatiles	CAS Number	Quantitation Limits
		Water µg/L
1. Phenol	108-95-2	5
2. bis-(2-Chloroethyl)ether	111-44-4	5
3. 2-Chlorophenol	95-57-8	5
4. 2-Methylphenol	95-48-7	5
5. 2,2'-oxybis(1-Chloropropane)	108-60-1	5
6. 4-Methylphenol	106-44-5	5
7. N-Nitroso-di-n-propylamine	621-64-7	5
8. Hexachloroethane	67-72-1	5
9. Nitrobenzene	98-95-3	5
10. Isophorone	78-59-1	5
11. 2-Nitrophenol	88-75-5	5
12. 2,4-Dimethylphenol	105-67-9	5
13. bis-(2-Chloroethoxy)methane	11-91-1	5
14. 2,4-Dichlorophenol	120-83-2	5
15. 1,2,4-Trichlorobenzene	120-82-1	5
16. Naphthalene	91-20-3	5
17. 4-Chloroaniline	106-47-8	5
18. Hexachlorobutadiene	87-68-3	5
19. 4-Chloro-3-methylphenol	59-50-7	5
20. 2-Methylnaphthalene	91-57-6	5
21. Hexachlorocyclopentadiene	77-47-4	5
22. 2,4,6-Trichlorophenol	88-06-2	5
23. 2,4,5-Trichlorophenol	95-95-4	20
24. 2-Chloronaphthalene	91-58-7	5
25. 2-Nitroaniline	88-74-4	20
26. Dimethylphthalate	131-11-3	5
27. Acenaphthylene	208-96-8	5
28. 2,6-Dinitrotoluene	606-20-2	5
29. 3-Nitroaniline	99-09-2	20
30. Acenaphthene	83-32-9	5
31. 2,4-Dinitrophenol	51-28-5	20
32. 4-Nitrophenol	100-02-7	20
33. Dibenzofuran	132-64-9	5

TARGET COMPOUND LIST (TCL) AND
CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)
(CONT'D.)

Semivolatiles	CAS Number	Quantitation Limits
		<u>Water</u> µg/L
34. 2,4-Dinitrotoluene	121-14-2	5
35. Diethylphthalate	84-66-2	5
36. 4-Chlorophenyl-phenylether	7005-72-3	5
37. Fluorene	86-73-7	5
38. 4-Nitroaniline	100-01-6	20
39. 4,6-Dinitro-2-methylphenol	534-52-1	20
40. N-Nitrosodiphenylamine	86-30-6	5
41. 4-Bromophenyl-phenylether	101-55-3	5
42. Hexachlorobenzene	118-74-1	5
43. Pentachlorophenol	87-86-5	20
44. Phenanthrene	85-01-8	5
45. Anthracene	120-12-7	5
46. Di-n-butylphthalate	84-74-2	5
47. Fluoranthene	206-44-0	5
48. Pyrene	129-00-0	5
49. Butylbenzylphthalate	85-68-7	5
50. 3,3'-Dichlorobenzidine	91-94-1	5
51. Benzo(a)anthracene	56-55-3	5
52. Chrysene	218-01-9	5
53. bis-(2-Ethylhexyl)phthalate	117-81-7	5
54. Di-n-octylphthalate	117-84-0	5
55. Benzo(b)fluoranthene	205-99-2	5
56. Benzo(k)fluoranthene	207-08-9	5
57. Benzo(a)pyrene	50-32-8	5
58. Indeno(1,2,3-cd)pyrene	193-39-5	5
59. Dibenz(a,h)anthracene	53-70-3	5
60. Benzo(g,h,i)perylene	191-24-2	5

TARGET COMPOUND LIST (TCL) AND
CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)
(CONT'D.)

Pesticides/PCBs	CAS Number	Quantitation Limits
		Water µg/L
1. alpha-BHC	319-84-6	0.01
2. beta-BHC	319-85-7	0.01
3. delta-BHC	319-36-8	0.01
4. gamma-BHC (Lindane)	58-89-9	0.01
5. Heptachlor	76-44-8	0.01
6. Aldrin	309-00-2	0.01
7. Heptachlor epoxide	1024-57-3	0.01
8. Endosulfan I	959-98-8	0.01
9. Dieldrin	60-57-1	0.02
10. 4,4'-DDE	72-55-9	0.02
11. Endrin	72-20-8	0.02
12. Endosulfan II	33213-65-9	0.02
13. 4,4'-DDD	72-54-8	0.02
14. Endosulfan sulfate	1031-07-8	0.02
15. 4,4'-DDT	50-29-3	0.02
16. Methoxychlor	72-43-5	0.10
17. Endrin ketone	53494-70-5	0.02
18. Endrin aldehyde	7421-36-3	0.02
19. alpha-Chlordane	5103-71-9	0.01
20. gamma-Chlordane	5103-74-2	0.01
21. Toxaphene	8001-35-2	1.0
22. Aroclor-1016	12674-11-2	0.20
23. Aroclor-1221	11104-28-2	0.20
24. Aroclor-1232	11141-16-5	0.40
25. Aroclor-1242	53469-21-9	0.20
26. Aroclor-1248	12672-29-6	0.20
27. Aroclor-1254	11097-69-1	0.20
28. Aroclor-1260	11096-82-5	0.20

Routine Analytical Services (RAS)
 TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Volatiles	CAS Number	Quantitation Limits*			
		Water	Low Soil	Med. Soil	On Column
		ug/L	ug/Kg	ug/Kg	(ng)
1. Chloromethane	74-87-3	10	10	1200	(50)
2. Bromomethane	74-83-9	10	10	1200	(50)
3. Vinyl Chloride	75-01-4	10	10	1200	(50)
4. Chloroethane	75-00-3	10	10	1200	(50)
5. Methylene Chloride	75-09-2	10	10	1200	(50)
6. Acetone	67-64-1	10	10	1200	(50)
7. Carbon Disulfide	75-15-0	10	10	1200	(50)
8. 1,1-Dichloroethene	75-35-4	10	10	1200	(50)
9. 1,1-Dichloroethane	75-34-3	10	10	1200	(50)
10. 1,2-Dichloroethene (total)	540-59-0	10	10	1200	(50)
11. Chloroform	67-66-3	10	10	1200	(50)
12. 1,2-Dichloroethane	107-06-2	10	10	1200	(50)
13. 2-Butanone	78-93-3	10	10	1200	(50)
14. 1,1,1-Trichloroethane	71-55-6	10	10	1200	(50)
15. Carbon Tetrachloride	56-23-5	10	10	1200	(50)
16. Bromodichloromethane	75-27-4	10	10	1200	(50)
17. 1,2-Dichloropropane	78-87-5	10	10	1200	(50)
18. cis-1,3-Dichloropropene	10061-01-5	10	10	1200	(50)
19. Trichloroethene	79-01-6	10	10	1200	(50)
20. Dibromochloromethane	124-48-1	10	10	1200	(50)
21. 1,1,2-Trichloroethane	79-00-5	10	10	1200	(50)
22. Benzene	71-43-2	10	10	1200	(50)
23. trans-1,3-Dichloropropene	10061-02-6	10	10	1200	(50)
24. Bromoform	75-25-2	10	10	1200	(50)
25. 4-Methyl-2-pentanone	108-10-1	10	10	1200	(50)
26. 2-Hexanone	591-78-6	10	10	1200	(50)
27. Tetrachloroethene	127-18-4	10	10	1200	(50)
28. Toluene	108-88-3	10	10	1200	(50)
29. 1,1,2,2-Tetrachloroethane	79-34-5	10	10	1200	(50)
30. Chlorobenzene	108-90-7	10	10	1200	(50)
31. Ethyl Benzene	100-41-4	10	10	1200	(50)
32. Styrene	100-42-5	10	10	1200	(50)
33. Xylenes (Total)	1330-20-7	10	10	1200	(50)

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Semivolatiles	CAS Number	Quantitation Limits*			
		Water ug/L	Low Soil ug/Kg	Med. Soil ug/Kg	On Column (ng)
34. Phenol	108-95-2	10	330	10000	(20)
35. bis(2-Chloroethyl) ether	111-44-4	10	330	10000	(20)
36. 2-Chlorophenol	95-57-8	10	330	10000	(20)
37. 1,3-Dichlorobenzene	541-73-1	10	330	10000	(20)
38. 1,4-Dichlorobenzene	106-46-7	10	330	10000	(20)
39. 1,2-Dichlorobenzene	95-50-1	10	330	10000	(20)
40. 2-Methylphenol	95-48-7	10	330	10000	(20)
41. 2,2'-oxybis (1-Chloropropane)#	108-60-1	10	330	10000	(20)
42. 4-Methylphenol	106-44-5	10	330	10000	(20)
43. N-Nitroso-di-n- propylamine	621-64-7	10	330	10000	(20)
44. Hexachloroethane	67-72-1	10	330	10000	(20)
45. Nitrobenzene	98-95-3	10	330	10000	(20)
46. Isophorone	78-59-1	10	330	10000	(20)
47. 2-Nitrophenol	88-75-5	10	330	10000	(20)
48. 2,4-Dimethylphenol	105-67-9	10	330	10000	(20)
49. bis(2-Chloroethoxy) methane	111-91-1	10	330	10000	(20)
50. 2,4-Dichlorophenol	120-83-2	10	330	10000	(20)
51. 1,2,4-Trichlorobenzene	120-82-1	10	330	10000	(20)
52. Naphthalene	91-20-3	10	330	10000	(20)
53. 4-Chloroaniline	106-47-8	10	330	10000	(20)
54. Hexachlorobutadiene	87-68-3	10	330	10000	(20)
55. 4-Chloro-3-methylphenol	59-50-7	10	330	10000	(20)
56. 2-Methylnaphthalene	91-57-6	10	330	10000	(20)
57. Hexachlorocyclopentadiene	77-47-4	10	330	10000	(20)
58. 2,4,6-Trichlorophenol	88-06-2	10	330	10000	(20)
59. 2,4,5-Trichlorophenol	95-95-4	25	800	25000	(50)
60. 2-Chloronaphthalene	91-58-7	10	330	10000	(20)
61. 2-Nitroaniline	88-74-4	25	800	25000	(50)
62. Dimethylphthalate	131-11-3	10	330	10000	(20)
63. Acenaphthylene	208-96-8	10	330	10000	(20)
64. 2,6-Dinitrotoluene	606-20-2	10	330	10000	(20)
65. 3-Nitroaniline	99-09-2	25	800	25000	(50)
66. Acenaphthene	83-32-9	10	330	10000	(20)
67. 2,4-Dinitrophenol	51-28-5	25	800	25000	(50)
68. 4-Nitrophenol	100-02-7	25	800	25000	(50)

= Previously known by the name bis(2-Chloroisopropyl) ether

(continued)

Semivolatiles	CAS Number	Quantitation Limits*			
		Low		Med.	On Column
		Water	Soil	Soil	
		ug/L	ug/Kg	ug/Kg	(ng)
69. Dibenzofuran	132-64-9	10	330	10000	(20)
70. 2,4-Dinitrotoluene	121-14-2	10	330	10000	(20)
71. Diethylphthalate	84-66-2	10	330	10000	(20)
72. 4-Chlorophenyl-phenyl ether	7005-72-3	10	330	10000	(20)
73. Fluorene	86-73-7	10	330	10000	(20)
74. 4-Nitroaniline	100-01-6	25	800	25000	(50)
75. 4,6-Dinitro-2-methylphenol	534-52-1	25	800	25000	(50)
76. N-nitrosodiphenylamine	86-30-6	10	330	10000	(20)
77. 4-Bromophenyl-phenylether	101-55-3	10	330	10000	(20)
78. Hexachlorobenzene	118-74-1	10	330	10000	(20)
79. Pentachlorophenol	87-86-5	25	800	25000	(50)
80. Phenanthrene	85-01-8	10	330	10000	(20)
81. Anthracene	120-12-7	10	330	10000	(20)
82. Carbazole	86-74-8	10	330	10000	(20)
83. Di-n-butylphthalate	84-74-2	10	330	10000	(20)
84. Fluoranthene	206-44-0	10	330	10000	(20)
85. Pyrene	129-00-0	10	330	10000	(20)
86. Butylbenzylphthalate	85-68-7	10	330	10000	(20)
87. 3,3'-Dichlorobenzidine	91-94-1	10	330	10000	(20)
88. Benzo(a)anthracene	56-55-3	10	330	10000	(20)
89. Chrysene	218-01-9	10	330	10000	(20)
90. bis(2-Ethylhexyl)phthalate	117-81-7	10	330	10000	(20)
91. Di-n-octylphthalate	117-84-0	10	330	10000	(20)
92. Benzo(b)fluoranthene	205-99-2	10	330	10000	(20)
93. Benzo(k)fluoranthene	207-08-9	10	330	10000	(20)
94. Benzo(a)pyrene	50-32-8	10	330	10000	(20)
95. Indeno(1,2,3-cd)pyrene	193-39-5	10	330	10000	(20)
96. Dibenz(a,h)anthracene	53-70-3	10	330	10000	(20)
97. Benzo(g,h,i)perylene	191-24-2	10	330	10000	(20)

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

TARGET COMPOUND LIST (TCL) AND CONTRACT REQUIRED QUANTITATION LIMITS (CRQL)

Pesticides/Aroclors	CAS Number	Quantitation Limits*		
		Water ug/L	Soil ug/Kg	On Column (pg)
98. alpha-BHC	319-84-6	0.05	1.7	5
99. beta-BHC	319-85-7	0.05	1.7	5
100. delta-BHC	319-86-8	0.05	1.7	5
101. gamma-BHC (Lindane)	58-89-9	0.05	1.7	5
102. Heptachlor	76-44-8	0.05	1.7	5
103. Aldrin	309-00-2	0.05	1.7	5
104. Heptachlor epoxide	1024-57-3	0.05	1.7	5
105. Endosulfan I	959-98-8	0.05	1.7	5
106. Dieldrin	60-57-1	0.10	3.3	10
107. 4,4'-DDE	72-55-9	0.10	3.3	10
108. Endrin	72-20-8	0.10	3.3	10
109. Endosulfan II	33213-65-9	0.10	3.3	10
110. 4,4'-DDD	72-54-8	0.10	3.3	10
111. Endosulfan sulfate	1031-07-8	0.10	3.3	10
112. 4,4'-DDT	50-29-3	0.10	3.3	10
113. Methoxychlor	72-43-5	0.50	17.0	50
114. Endrin ketone	53494-70-5	0.10	3.3	10
115. Endrin aldehyde	7421-36-3	0.10	3.3	10
116. alpha-Chlordane	5103-71-9	0.05	1.7	5
117. gamma-Chlordane	5103-74-2	0.05	1.7	5
118. Toxaphene	8001-35-2	5.0	170.0	500
119. Aroclor-1016	12674-11-2	1.0	33.0	100
120. Aroclor-1221	11104-28-2	2.0	67.0	200
121. Aroclor-1232	11141-16-5	1.0	33.0	100
122. Aroclor-1242	53469-21-9	1.0	33.0	100
123. Aroclor-1248	12672-29-6	1.0	33.0	100
124. Aroclor-1254	11097-69-1	1.0	33.0	100
125. Aroclor-1260	11096-82-5	1.0	33.0	100

* Quantitation limits listed for soil/sediment are based on wet weight. The quantitation limits calculated by the laboratory for soil/sediment, calculated on dry weight basis as required by the contract, will be higher.

There is no differentiation between the preparation of low and medium soil samples in this method for the analysis of Pesticides/Aroclors.

Contract Laboratory Program
Target Analyte List
Inorganic Quantitation Limits

COMPOUND	PROCEDURE	SOIL WATER	SEDIMENT SLUDGE
Aluminum	ICP	200 ug/L	40 mg/Kg
Antimony	Furnace	60	2.4
Arsenic	Furnace	10	2
Barium	ICP	200	40
Beryllium	ICP	5	1
Cadmium	ICP	5	1
Calcium	ICP	5000	1000
Chromium	ICP	10	2
Cobalt	ICP	50	10
Copper	ICP	25	5
Iron	ICP	100	20
Lead	Furnace	5	1
Magnesium	ICP	5000	1000
Manganese	ICP	15	3
Mercury	Cold Vapor	0.2	0.008
Nickel	ICP	40	8
Potassium	ICP	5000	1000
Selenium	Furnace	5	1
Silver	ICP	10	2
Sodium	ICP	5000	1000
Thallium	Furnace	10	2
Vanadium	ICP	50	10
Zinc	ICP	20	4
Cyanide	Color	10	2

RAS

ORGANIC

GROUND WATER DATA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

PAGE 1 OF _____

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on Aug 27 1991

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory

TO: Data User: MPCA

We have reviewed the data for the following case(s).

SITE NAME: Storn Rubber Tool SMO Case No. _____

EPA Data Set No. _____ No. of Samples: _____ D.U./Activity Numbers _____

CRL No. _____

SMO Traffic No. ENS 24-31, 33-34, 23

CLP Laboratory: Ut Tona Hrs. Required for Review: _____

Following are our findings: This review covers the analyses of 1 water and 2 soil samples for RAS Volatile Organics. Refer to the case validation narrative & Calibration outlier forms for data qualifications.

- ☒ Data are acceptable for use.
☒ Data are acceptable for use with qualifications referenced above.
See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
() Data are preliminary - pending verification by Contractor Laboratory.
See Case Summary above.
() Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

STERN RUBBER AND TOOL
CASE 16929 DELIVERY GROUP ENS 24
WATER AND SOIL - TCL VOLATILES

1 HOLDING TIMES

Holding times for Volatile water and soil samples (sampling to analysis) ranged from 8 to 13 days; there is no indication from the Organic Traffic Report that water samples were preserved with HCl. Aromatic compounds in all samples have been qualified as "J" (estimated) due to possible low bias resulting from loss of aromatics.

2 GC/MS TUNING

GC/MS mass tuning criteria were met for this delivery group.

3 CALIBRATION

Calibration deficiencies are noted on the Calibration Outlier forms.

4 LABORATORY BLANKS

Soil Method Blank VBLK15 contained Methylene chloride and Carbon disulfide at very low concentrations (2 and 1 ug/Kg respectively); Methylene chloride had been qualified "U" (non-detected) in the single soil sample ENS 33. Water Method Blank VBLK17 did not contain TCL compounds. Water Method Blank VBLK19 contained Methylene chloride at 2 ug/L ; where present in associated Investigative samples Methylene chloride has been qualified as "U".

5 FIELD BLANKS

ENS25 was identified as a Field Blank; there were no TCL compounds quantified in this sample.

6 TRIP BLANKS

ENS24 was identified as a Trip Blank; there were no TCL compounds identified in this sample.

7 SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

The number three System Monitoring Compound (1,2-Dichloroethane-d4) was recovered at a percentage slightly above the Contract Required Limits of 76-114% in EMS23 MS (120%) and EMS 23MSD (119%) ; this non-compliance did not result in qualification of Investigative sample compounds.

8 MATRIX SPIKE/MATRIX SPIKE DUPLICATES (MS/MSD)

Both the Water MS/MSD and the Soil MS/MSD were within Contract Required QC Limits.

9 INTERNAL STANDARDS PERFORMANCE

Internal Standards were within Contract Required QC Limits for all samples.

10 TCL COMPOUND IDENTIFICATION

[Handwritten signature]
MS/CA
11/1/21

TCL Compounds quantitated in samples from this Delivery Group were identified using library mass spectra, and Relative Retention Times for these compounds were within the appropriate windows.

11 COMPOUND QUANTITATION

TCL Compounds were quantitated as per the CLP Statement of Work.

12 TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

TICs present in samples from this Sample Delivery Group were identified using the laboratories mass spectra library as per the CLP Statement of Work.

W. J. Ford
11/1/21

AMENDMENT TO
STERN RUBBER AND TOOL
CASE 16929 DELIVERY GROUP ENS 24
WATER AND SOIL - TCL VOLATILES


11/13/91

1 HOLDING TIMES

CLP Sample Traffic Tags indicated that VOC samples were preserved with HCl to a pH of <2 ; the "J" (estimated) qualifier has been removed from Aromatic VOC compounds on the Form I data sheets (technical holding times for Aromatic compounds in acid preserved water samples is 14 days). The original non-detect qualifier ("U") for these compounds should be considered appropriate.

W. Matuszko
WPC
11/13/91

				7/23	11/34	TCL VOLATILES CALIBRATION FORM									
		Initial Cal.	Cont. Cal.	Initial Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration	
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
		RRF	%RSD	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	%RSD
Chloromethane	0.01														
Bromomethane	0.10	< 20.5	< 25.0												
Vinyl chloride	0.10	< 20.5	< 25.0												
Chloroethane	0.01														
Methylene chloride	0.01														
Acetone	0.01														
Carbon disulfide	0.01														
1,1-Dichloroethene	0.10	< 20.5	< 25.0												
1,1-Dichloroethane	0.20	< 20.5	< 25.0												
1,2-Dichloroethene (total)	0.01														
Chloroform	0.20	< 20.5	< 25.0												
1,2-Dichloroethane	0.10	< 20.5	< 25.0												
2-Butanone	0.01					33.2									
1,1,1-Trichloroethane	0.10	< 20.5	< 25.0												
Carbon tetrachloride	0.10	< 20.5	< 25.0												
Bromodichloromethane	0.20	< 20.5	< 25.0												
1,2-Dichloropropane	0.01														
cis-1,3-Dichloropropene	0.20	< 20.5	< 25.0												
Trichloroethene	0.30	< 20.5	< 25.0												
Dibromochloromethane	0.10	< 20.5	< 25.0												
1,1,2-Trichloroethane	0.10	< 20.5	< 25.0												
Benzene	0.50	< 20.5	< 25.0												
trans-1,3-Dichloropropene	0.10	< 20.5	< 25.0												
Bromoform	0.10	< 20.5	< 25.0												
4-Methyl-2-pentanone	0.01														
2-Hexanone	0.01					32.0									
Tetrachloroethene	0.20	< 20.5	< 25.0												
1,1,2,2-Tetrachloroethane	0.50	< 20.5	< 25.0					0.441	25.6	0.478	19.4				
Toluene	0.40	< 20.5	< 25.0												
Chlorobenzene	0.50	< 20.5	< 25.0												
Ethylbenzene	0.10	< 20.5	< 25.0												
Styrene	0.30	< 20.5	< 25.0												
Xylenes (total)	0.30	< 20.5	< 25.0												
Bromofluorobenzene	0.20	< 20.5	< 25.0												
Toluene-d8	0.01														
1,2-Dichloroethane-d4	0.01														
		Associated Samples						VBK 17	ENS 27	VBK 19	ENS 34				
		Associated Samples						ENS 23	ENS 30	ENS 29					
		Associated Samples						ENS 24	ENS 28 MS	ENS 28					
		Associated Samples						ENS 25	ENS 28 MS	ENS 31					

				7/24	9 ²⁵	TCL VOLATILES CALIBRATION FORM									
				Initial Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration	
				Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
				RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD
Chloromethane	0.01														
Bromomethane	0.10	< 20.5	< 25.0												
Vinyl chloride	0.10	< 20.5	< 25.0												
Chloroethane	0.01														
Methylene chloride	0.01														
Acetone	0.01														
Carbon disulfide	0.01														
1,1-Dichloroethene	0.10	< 20.5	< 25.0												
1,1-Dichloroethane	0.20	< 20.5	< 25.0												
1,2-Dichloroethene (total)	0.01														
Chloroform	0.20	< 20.5	< 25.0												
1,2-Dichloroethane	0.10	< 20.5	< 25.0												
2-Butanone	0.01				20.5										
1,1,1-Trichloroethane	0.10	< 20.5	< 25.0												
Carbon tetrachloride	0.10	< 20.5	< 25.0												
Bromodichloromethane	0.20	< 20.5	< 25.0												
1,2-Dichloropropane	0.01														
cis-1,3-Dichloropropene	0.20	< 20.5	< 25.0												
Trichloroethene	0.30	< 20.5	< 25.0												
Dibromochloromethane	0.10	< 20.5	< 25.0												
1,1,2-Trichloroethane	0.10	< 20.5	< 25.0												
Benzene	0.50	< 20.5	< 25.0												
trans-1,3-Dichloropropene	0.10	< 20.5	< 25.0												
Bromoform	0.10	< 20.5	< 25.0												
4-Methyl-2-pentanone	0.01														
2-Hexanone	0.01														
Tetrachloroethene	0.20	< 20.5	< 25.0												
1,1,2,2-Tetrachloroethane	0.50	< 20.5	< 25.0												
Toluene	0.40	< 20.5	< 25.0												
Chlorobenzene	0.50	< 20.5	< 25.0												
Ethylbenzene	0.10	< 20.5	< 25.0												
Styrene	0.30	< 20.5	< 25.0												
Xylenes (total)	0.30	< 20.5	< 25.0												
Bromofluorobenzene	0.20	< 20.5	< 25.0												
Toluene-d8	0.01														
1,2-Dichloroethane-d4	0.01														
		Associated Samples				VBIKIS	ENS 26								
		Associated Samples				ENS 33									
		Associated Samples				ENS 33 MS									
		Associated Samples				ENS 33 MD									

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS									
91YF51		STERN RUBBER & TOOL													
SAMPLERS: (Signature)						EPA TRAIL #S									
Swan Taylor															
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION										
RO3	8/7/91														
RO4	8/7/91														
DO2	8/7/91														
SO9	8/6/91	2015		X	SPAKE, MONW-1	6,40ml	X					5143695-700			
RO5	8/7/91	1005		X	FIELD BLANK, SW-1	2,40ml	X					5143769-770			
S10	8/7/91	1015		X	SPAKE, SW-1	6,40ml	X					5143763-768			
S11	8/7/91	1025		X	DW-1	2,40ml	X					5143753-754			
S12	8/7/91	1115		X	DSW-1	2,40ml	X					5143755-756			
S16	8/7/91	1330		X	UW-1	2,40ml	X					5143771-772			
RO3	8/6/91	0830		X	TRIP BLANK	2,40ml	X					5143689-690			
RO4	8/6/91	1830		X	FIELD BLANK, MONW-1	2,40ml	X					5143691-692			
DO2	8/6/91	2010		X	DUPE, MONW-1	2,40ml	X					5143693-694			
S14	8/7/91	1040			DSS-1,	2,40ml	X					5143759-760			
S16															
S15	8/7/91	915			BS-1	2,40ml	X					5143761-762			
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)					
Swan Taylor		8/8/91 1430													
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)					
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks							
				DICK SWAN TAYLOR		8/9/91 1000		COC SEAL #S 96554, 96555 AIRBILL # 0726937363 LAB: UNIVERSITY OF IOWA							

Organic Traffic Report

(For CLP Use Only)

Case Number

SAS No. (if applicable)

16927

1. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)	2. Region Number	Sampling Co.	4. Date Shipped	Airbill Number	5. Date Received	Received by
	V	NIPCH	8/10/91	07262 + 34	8/9/91	DICK SWEETING
	Sampler (Name)		Carrier		Laboratory Contract Number	Unit Price
	SIL HULT		TERRY		68 D00154	# 725
SD6 # ENS 23	3. Ship To:		Triple volume required for matrix spike/duplicate aqueous sample.		6. Transfer to	Date Received
	UNIVERSITY OF MICHIGAN UNIVERSITY HYGIENIC ORGANIC UNIT KANSAS CITY, MO 64124		Ship medium and high concentration samples in paint cans.		Received by	
	KANSAS CITY, MO 64124		See reverse for additional instructions.		Contract Number	Price

[illegible]

178

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS24

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110451

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1085

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

INSTR ID 7001

11/1/91

J's
removed
11/13/91

16929

FORM I VOA

26

3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS24

Lab Name: HYGIENIC LAB Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929 SAS No.: _____ SDG No.: ENS23

Matrix: (soil/water) WATER Lab Sample ID: 9110451

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V1085

Level: (low/med) LOW Date Received: 08/09/91

% Moisture: not dec. _____ Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ul) Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

INSTR ID 7001

16929

FORM I VOA-TIC

3/90

2.7

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS25

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110452

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1086

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

INSTR ID 7001

J's removed
11/13/91
wn

16929

FORM I VOA

3/90

30

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS25

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110452

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1086

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

INSTR ID 7001

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS27

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110454

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1087

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

INSTR ID 7001

11/1/91
m

4/13/91
m

5/13/91

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS27

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110454

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1087

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 87683	1,3-Butadiene, 1,1,2,3,4,4-h	23.97	8.0	JN

INSTR ID 7001

16929

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS28

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110455

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1096

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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55 removed
u/l/g

16929

FORM 1 VOA

50

3/90

INSTR ID 7001

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS28

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110455

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1096

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

INSTR ID 7001

16929

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS29

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110456

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1095

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

INSTR ID 7001

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS29

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110456

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1095

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

INSTR IN 7004

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS30

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110457

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1090

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

INSTR ID 7001

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	2	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS30

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110457

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1090

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

INSTR ID 7001

16929

FORM I VOA-TIC

3/90

59

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS31

Lab Name: HYGIENIC LAB Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929 SAS No.: _____ SDG No.: ENS23

Matrix: (soil/water) WATER Lab Sample ID: 9110458

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: V1097

Level: (low/med) LOW Date Received: 08/09/91

% Moisture: not dec. _____ Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ul) Soil Aliquot Volume: _____ (ul)

INSTR ID 7001

CAS NO. COMPOUND CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U ⁸
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	7	J
108-90-7	Chlorobenzene	10	U ⁸
100-41-4	Ethylbenzene	10	U ⁸
100-42-5	Styrene	10	U ⁸
1330-20-7	Xylene (total)	10	U ⁸

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS31

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110458

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1097

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

INSTR ID 7001

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS34

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110460

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1098

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

INSTR ID 7001

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS34

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110460

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1098

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

INSTR ID 7001

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBK15

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) SOIL

Lab Sample ID: VBK15

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: B1334

Level: (low/med) LOW

Date Received: 08/15/91

% Moisture: not dec. _____

Date Analyzed: 08/15/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:

CAS NO.

COMPOUND

(ug/L or ug/Kg) UG/KG

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	2	J
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	1	J
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

INSTR ID 7001

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBK15

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) SOIL

Lab Sample ID: VBK15

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: B1334

Level: (low/med) LOW

Date Received: 08/15/91

% Moisture: not dec. _____

Date Analyzed: 08/15/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

INSTR ID 7001

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBK17

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: VBK17

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B1336

Level: (low/med) LOW

Date Received: 08/17/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

INSTR ID 7001

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLK17

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: VBLK17

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B1336

Level: (low/med) LOW

Date Received: 08/17/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

INSTR ID 7001

16929

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK19

Lab Name: HYGIENIC LAB Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929 SAS No.: _____ SDG No.: ENS23

Matrix: (soil/water) WATER Lab Sample ID: VBLK19

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: B1337

Level: (low/med) LOW Date Received: 08/19/91

% Moisture: not dec. _____ Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ul) Soil Aliquot Volume: _____ (ul)

INSTR ID 7001

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO. COMPOUND Q

74-87-3	-----Chloromethane	10	U
74-83-9	-----Bromomethane	10	U
75-01-4	-----Vinyl Chloride	10	U
75-00-3	-----Chloroethane	10	U
75-09-2	-----Methylene Chloride	2	J
67-64-1	-----Acetone	10	U
75-15-0	-----Carbon Disulfide	10	U
75-35-4	-----1,1-Dichloroethene	10	U
75-34-3	-----1,1-Dichloroethane	10	U
540-59-0	-----1,2-Dichloroethene (total)	10	U
67-66-3	-----Chloroform	10	U
107-06-2	-----1,2-Dichloroethane	10	U
78-93-3	-----2-Butanone	10	U
71-55-6	-----1,1,1-Trichloroethane	10	U
56-23-5	-----Carbon Tetrachloride	10	U
75-27-4	-----Bromodichloromethane	10	U
78-87-5	-----1,2-Dichloropropane	10	U
10061-01-5	-----cis-1,3-Dichloropropene	10	U
79-01-6	-----Trichloroethene	10	U
124-48-1	-----Dibromochloromethane	10	U
79-00-5	-----1,1,2-Trichloroethane	10	U
71-43-2	-----Benzene	10	U
10061-02-6	-----trans-1,3-Dichloropropene	10	U
75-25-2	-----Bromoform	10	U
108-10-1	-----4-Methyl-2-Pentanone	10	U
591-78-6	-----2-Hexanone	10	U
127-18-4	-----Tetrachloroethene	10	U
79-34-5	-----1,1,2,2-Tetrachloroethane	10	U
108-88-3	-----Toluene	10	U
108-90-7	-----Chlorobenzene	10	U
100-41-4	-----Ethylbenzene	10	U
100-42-5	-----Styrene	10	U
1330-20-7	-----Xylene (total)	10	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBK19

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: VBK19

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: B1337

Level: (low/med) LOW

Date Received: 08/19/91

% Moisture: not dec. _____

Date Analyzed: 08/19/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

INSTR ID 7001

16929

142

SAS

ORGANIC

GROUND WATER DATA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

PAGE 1 OF _____

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on _____

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory

TO: Data User: _____

We have reviewed the data for the following case(s).

SITE NAME: Stern Rubber & Tool Co. SMO Case No. 16929/6339E
EPA Data Set No. _____ No. of D.U./Activity
Samples: 10 Numbers _____

CRL No. _____

SMO Traffic No. EKL 27-29, 93, ENS 05, 18-22

CLP Laboratory: S-cubed Hrs. Required
for Review: _____

Following are our findings: The following review covers the analyses of 10 water samples for low level organics; due to laboratory instrument problems, samples EKL 29 and ENS 18 were made to be analyzed. Refer to the Validation Narrative and outlier forms for Data Qualifiers.

[Signature]
10/22/91

- () Data are acceptable for use.
- (X) Data are acceptable for use with qualifications referenced above. See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.
- () Data are preliminary - pending verification by Contractor Laboratory. See Case Summary above.
- () Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

Case 16924
S- cubed
Stem Rubber = Tol

1. HOLDING TIMES

Holding times for these Water samples for Volatiles exceeded the technical requirements of 14 days for acid-preserved samples; all results should be considered as "estimated" and are qualified with the letter "J".

2. GC/MS TUNING

GC/MS Tuning criteria were met for these samples.

3. CALIBRATION

Calibration outliers are noted on the outlier form.

4. METHOD BLANKS

Volatiles Method Blanks contained low levels of the common laboratory contaminants acetone and methylene chloride; these compounds have been qualified as "U" - "not detected" in associated Investigative samples.

5. SURROGATES

The Low Level Volatiles Surrogate Bromofluorobenzene was within required acceptance limits for all Investigative samples.

6. MATRIX SPIKE/SPIKE DUPLICATE

MS/MSDs are not required on Low Level Organics analyses.

7. INTERNAL STANDARDS

Internal Standards were within acceptable QC limits for all samples.

8. LABORATORY CONTROL SAMPLE (LCS)

The LCS (designed to assess CLP laboratory methods capability) had a number of spike compounds with percentage recoveries greater than the maximum 140% recovery; however, due to the holding time violation and subsequent qualification of all Volatile sample results as estimated, no qualification of data has been made based on the LCS.

10. CLP COMPOUND QUANTITATION AND IDENTIFICATION

Volatiles compounds reported in this sample group appear to have been correctly calculated and confirmed by library mass spectra, as per the Statement of Work.

11. OTHER

Sample EKL 93 was identified from the Organic Traffic Report as the Trip Blank for this sample group; this sample contained the Target Compound Acetone at a concentration of 2.3 ug/L (estimated). Acetone was also detected

Case 16424
S- cubed

in one of the Volatiles Method Blanks at similar concentrations (1.9 ug/L), and it's presence in this QC sample is most likely attributable to the laboratory; Acetone in EKL 93 has been qualified as "U".

Sample EKL 27 was identified from the same Traffic Report as the Field Blank for this group; no Target Compounds were identified in this sample.

September 12, 1991

Vol 1

RECEIVED

SEP 17 1991

Narrative Case: 16929 SAS 6339E
S-CUBED Contract No. 68D90027

US EPA CENTRAL REGIONAL LAB.
536 S. CLARK ST.
CHICAGO, ILLINOIS 60605

This case consists of the following samples reported under SDG : EKL27

EKL27	EKL93	ENS19	ENS22
EKL28	ENS05	ENS20	
EKL29	ENS18	ENS21	

PEM: VOA: PV735

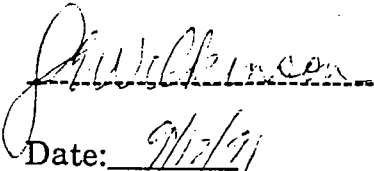
LCS: VOA: VLCS01

Volatile analyses were carried out outside of holding times on a packed column due to severe instrument problems on the capillary column instrument. 25 ml purge volumes were used. The internal standard was bromochloromethane, thus this compound could not be targeted. 1,2 dibromoethane was not available for standardization, thus no data are reported for this compound. From the LCS data it appears that the dichlorobenzene calibration is inaccurate. Samples were clean.

Several modifications of the volatile protocol have been necessary to achieve the most accurate data. The quantitation mass of 4-bromofluorobenzene has been changed from m/e 95 to m/e 174 due to an interference in the calibration standards from 1,1,2,2 tetrachloroethane. Due to the significant contribution to m/e 150 from the unlabeled 1,4 dichlorobenzene, the quantitation mass of internal standard 1,4 dichlorobenzene d₄ has been changed to m/e 152.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions

detailed above. Release of the data contained in this hardcopy data package and in the computer readable data submitted on floppy diskette has been authorized by the Laboratory Manager or his designee, as verified by the following signature.




Date: 9/12/97

JoAnn Wilkinson, Project Manager

Organic Traffic Report

(For CLP Use Only)

Case Number	SAS No. (if applicable)
16929	6331E

1. Sample Description (Enter in Column A) 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)	2. Region Number V	3. Sampling Co. MICH	4. Date Shipped 07-26-93	5. Airbill Number 07-26-93-37	6. Date Received 8/9/91	7. Received by 
	8. Sampler (Name) JIM THICKER		9. Carrier FedEx		10. Laboratory Contract Number	11. Unit Price
	12. 3. Ship To: 3315 CEDAR COUNTRY SAN ANTONIO, TX 78211-1015 PHONE: (512) 341-1225		13. Triple volume required for matrix spike/duplicate aqueous sample. 14. Ship medium and high concentration samples in paint cans. 15. See reverse for additional instructions.		16. 6. Transfer to	17. Date Received
					18. Received by	
					19. Contract Number	20. Price

[illegible]

CALIBRATION OUTLIERS
VOLATILE HSL COMPOUNDS

CASE/SAS #

16929

CONTRACTOR

Scrubed

Instrument #	Init. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.	Cont. Cal.
DATE/TIME:	8/28/91 802	8/30/91 1744	8/30/91 1766	8/31/91 900	
	RF %RSD *	RF %D *	RF %D *	RF %D *	RF %D *
Chloromethane					
Bromomethane					
Vinyl Chloride					
Chloroethane					
Methylene Chloride	4.47 59.2 J	2.34 47.7 J	2.35 47.4 J	2.74 36.56 J	
Acetone	5.16 60.5 J	3.82 25.9 J	4.03 21.8 J		
Carbon Disulfide					
1,1-Dichloroethane					
1,1-Dichloroethene					
Trans-1,2-Dichloroethene					
Chloroform					
2-Butanone	.124 68.8 J				
1,2-Dichloroethane					
1,1,1-Trichloroethane					
Carbon Tetrachloride					
Vinyl Acetate			.140 31.95 J		
Bromodichloromethane					
1,2-Dichloropropane					
Trans-1,3-Dichloropropene					
Trichloroethene					
Dibromochloromethane				.123 25.9 J	
1,1,2-Trichloroethane					
Benzene					
cis-1,3-Dichloropropene					
2,3-Dichloropropene					
Bromoform	.06 33.0 J	.041 31.9 R	.036 39.6 R	.037 38.5 R	
4-Methyl-2-Pentanone					
2-Hexanone					
Tetrachloroethene					
1,1,2,2-Tetrachloroethane					
Toluene					
Chlorobenzene					
Ethylbenzene					
Styrene					
m-Xylene					
p-Xylene					
1,2-Dibromo 3-chloropropane	.006 39.2 R			.003 47.3 R	
Bromofluorobenzene					
m-Dichlorobenzene					
p-Dichlorobenzene			.089 55.0 J		
o-Dichlorobenzene					
Reviewer's	VBW-1	VBW-1	VBW-2	VBW-3	
Initials/Date:	LCS	EKL-27	PV-735		
	ENS-05	EKL-28			
	-19				
	-20	EKL-93			
	-21				
	-22				

* These flags should be applied to the analytes on the sample data sheets.

* *****
 * S-CUBED *
 * LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET *
 * *****

.....
 : Sample Number :
 : EKL27 :
 :

CLIENT : EPA REGION 5
 PROJECT : 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A.
 Date Analyzed: 08-30-91
 pH: N.A.
 Percent Moisture: N.A.
 Purge Volume: 25 (mL)

Lab File ID no: ENS27
 Sample Matrix: WATER
 Date Sample Received: 08-09-91
 Data Release Authorized By: RM
 Dilution Factor: 1

CAS Number	ug/l or ug/kg (Circle One)	CAS Number	ug/l or ug/kg (Circle One)
74-87-3 CHLOROMETHANE	1 U	78-87-5 1,2-DICHLOROPROPANE	1 U
74-83-9 BROMOMETHANE	1 U	10061-01-5 CIS-1,3-DICHLOROPROPENE	1 U
75-01-4 VINYL CHLORIDE	1 U	79-01-6 TRICHLOROETHENE	1 U
75-00-3 CHLOROETHANE	1 U	124-48-1 DIBROMOCHLOROMETHANE	1 U
75-09-2 METHYLENE CHLORIDE	2 U	79-00-5 1,1,2-TRICHLOROETHANE	1 U
67-64-1 ACETONE	5 U	71-43-2 BENZENE	1 U
75-15-0 CARBON DISULFIDE	1 U	10061-02-6 TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4 1,1-DICHLOROETHENE	1 U	75-25-2 BROMOFORM	1 R
75-34-3 1,1-DICHLOROETHANE	1 U	108-10-1 4-METHYL-2-PENTANONE	5 U
540-59-0 1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6 2-HEXANONE	5 U
67-66-3 CHLOROFORM	1 U	127-18-4 TETRACHLOROETHENE	1 U
107-06-2 1,2-DICHLOROETHANE	1 U	79-34-5 1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3 2-BUTANONE	5 U	108-88-3 TOLUENE	1 U
71-55-6 1,1,1-TRICHLOROETHANE	1 U	108-90-7 CHLOROBENZENE	1 U
56-23-5 CARBON TETRACHLORIDE	1 U	100-41-4 ETHYLBENZENE	1 U
108-05-4 VINYL ACETATE	1 U	100-42-5 STYRENE	1 U
75-27-4 BROMODICHLOROMETHANE	1 U	1330-20-7 XYLENE (TOTAL)	1 U
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7 P-DICHLOROBENZENE	1 U
541-73-1 M-DICHLOROBENZENE	1 U	95-50-1 O-DICHLOROBENZENE	1 U

10/22/91
 um

Sample Number
EKL 27

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	UNKNOWN	VGA	4.32	0.6 JN
2.	H	H	5.64	1.3 JN
3.	UNKNOWN C6H12	"	12.46	4.0 JN
4.				
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* *****
 * S-CUBED *
 * LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET *
 * *****

.....
 : Sample Number :
 : EKL28 :
 :

CLIENT : EPA REGION 5
 PROJECT : 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A.
 Date Analyzed: 08-30-91
 pH: N.A.
 Percent Moisture: N.A.
 Purge Volume: 25 (mL)

Lab File ID no: ENS28
 Sample Matrix: WATER
 Date Sample Received: 08-09-91
 Data Release Authorized By: *AM*
 Dilution Factor: 1

CAS Number	<u>ug/l</u> or ug/kg (Circle One)	CAS Number	<u>ug/l</u> or ug/kg (Circle One)
74-87-3 CHLOROMETHANE	1 U <i>J</i>	78-87-5 1,2-DICHLOROPROPANE	1 U <i>S</i>
74-83-9 BROMOMETHANE	1 U	10061-01-5 CIS-1,3-DICHLOROPROPENE	1 U
75-01-4 VINYL CHLORIDE	1 U	79-01-6 TRICHLOROETHENE	1 U
75-00-3 CHLOROETHANE	1 U	124-48-1 DIBROMOCHLOROMETHANE	1 U
75-09-2 METHYLENE CHLORIDE	2 U	79-09-5 1,1,2-TRICHLOROETHANE	1 U
67-64-1 ACETONE	5 U	71-43-2 BENZENE	1 U
75-15-0 CARBON DISULFIDE	1 U	10061-02-6 TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4 1,1-DICHLOROETHENE	1 U	75-25-2 BROMOFORM	1 <i>R</i>
75-34-3 1,1-DICHLOROETHANE	1 U	108-10-1 4-METHYL-2-PENTANONE	5 U
540-59-0 1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6 2-HEXANONE	5 U
67-66-3 CHLOROFORM	1 U	127-18-4 TETRACHLOROETHENE	1 U
107-06-2 1,2-DICHLOROETHANE	1 U	79-34-5 1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3 2-BUTANONE	5 U	108-88-3 TOLUENE	1 U
71-55-6 1,1,1-TRICHLOROETHANE	1 U	108-90-7 CHLOROBENZENE	1 U
56-23-5 CARBON TETRACHLORIDE	1 U	100-41-4 ETHYLBENZENE	1 U
108-05-4 VINYL ACETATE	1 U	100-42-5 STYRENE	1 U
75-27-4 BROMODICHLOROMETHANE	1 U	1330-20-7 XYLENE (TOTAL)	1 U
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7 P-DICHLOROBENZENE	1 U
541-73-1 M-DICHLOROBENZENE	1 U <i>W</i>	95-50-1 O-DICHLOROBENZENE	1 U <i>W</i>

10/22/91
W

Sample Number
EKL28

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. _____	NO TC'S FOUND.	VBA		
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
13. _____				
14. _____				
15. _____				
16. _____				
17. _____				
18. _____				
19. _____				
20. _____				
21. _____				
22. _____				
23. _____				
24. _____				
25. _____				
26. _____				
27. _____				
28. _____				
29. _____				
30. _____				

* *****
 * S-CUBED *
 * LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET *
 * *****

.....
 : Sample Number :
 : EKL93 :
 :

CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A.
 Date Analyzed: 08-30-91
 pH: N.A.
 Percent Moisture: N.A.
 Purge Volume: 25 (mL)

Lab File ID no: ENS93
 Sample Matrix: WATER
 Date Sample Received: 08-09-91
 Data Release Authorized By: M
 Dilution Factor: 1

CAS Number	ug/l or ug/kg (Circle One)	CAS Number	ug/l or ug/kg (Circle One)
74-87-3 CHLOROMETHANE	1 U	78-87-5 1,2-DICHLOROPROPANE	1 U
74-83-9 BROMOMETHANE	1 U	10061-01-5 CIS-1,3-DICHLOROPROPENE	1 U
75-01-4 VINYL CHLORIDE	1 U	79-01-6 TRICHLOROETHENE	1 U
75-00-3 CHLOROETHANE	1 U	124-48-1 DIBROMOCHLOROMETHANE	1 U
75-09-2 METHYLENE CHLORIDE	2 U	79-00-5 1,1,2-TRICHLOROETHANE	1 U
67-64-1 ACETONE	2.3 U	71-43-2 BENZENE	1 U
75-15-0 CARBON DISULFIDE	1 U	10061-02-6 TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4 1,1-DICHLOROETHENE	1 U	75-25-2 BROMOFORM	1 R
75-34-3 1,1-DICHLOROETHANE	1 U	108-10-1 4-METHYL-2-PENTANONE	5 U
540-59-0 1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6 2-HEXANONE	5 U
67-66-3 CHLOROFORM	1 U	127-18-4 TETRACHLOROETHENE	1 U
107-06-2 1,2-DICHLOROETHANE	1 U	79-34-5 1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3 2-BUTANONE	5 U	108-88-3 TOLUENE	1 U
71-55-6 1,1,1-TRICHLOROETHANE	1 U	108-90-7 CHLOROBENZENE	1 U
56-23-5 CARBON TETRACHLORIDE	1 U	100-41-4 ETHYLBENZENE	1 U
108-05-4 VINYL ACETATE	1 U	100-42-5 STYRENE	1 U
75-27-4 BROMODICHLOROMETHANE	1 U	1330-20-7 XYLENE (TOTAL)	1 U
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7 P-DICHLOROBENZENE	1 U
541-73-1 M-DICHLOROBENZENE	1 U	95-50-1 O-DICHLOROBENZENE	1 U

10/22/91
 W

Sample Number
EKL93

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TC'S FOUND.	VOA		
2.				
3.				
4.				
5.				
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* *****
 * S-CUBED *
 * LOW CONC. WATER VOLATILE ORGANICS ANALYSIS DATA SHEET *
 * *****

.....
 : Sample Number :
 : ENS05 :
 :

CLIENT : EPA REGION 5
 PROJECT : 16929/SAS 6339E
 SDG No. : EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A.
 Date Analyzed: 08-30-91
 pH: N.A.
 Percent Moisture: N.A.
 Purge Volume: 25 (mL)

Lab File ID no: ENS05
 Sample Matrix: WATER
 Date Sample Received: 08-09-91
 Data Release Authorized By: RM
 Dilution Factor: 1

CAS Number		<u>ug/l</u> or ug/kg (Circle One)	CAS Number		<u>ug/l</u> or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	1 U	78-87-5	1,2-DICHLOROPROPANE	1 U
74-83-9	BROMOMETHANE	1 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	1 U	79-01-6	TRICHLOROETHENE	1 U
75-00-3	CHLOROETHANE	1 U	124-48-1	DIBROMOCHLOROMETHANE	1 U
75-09-2	METHYLENE CHLORIDE	2 U	79-00-5	1,1,2-TRICHLOROETHANE	1 U
67-64-1	ACETONE	5 U	71-43-2	BENZENE	1 U
75-15-0	CARBON DISULFIDE	1 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4	1,1-DICHLOROETHENE	1 U	75-25-2	BROMOFORM	1 R
75-34-3	1,1-DICHLOROETHANE	1 U	108-10-1	4-METHYL-2-PENTANONE	5 U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6	2-HEXANONE	5 U
67-66-3	CHLOROFORM	1 U	127-18-4	TETRACHLOROETHENE	1 U
107-06-2	1,2-DICHLOROETHANE	1 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3	2-BUTANONE	5 U	108-88-3	TOLUENE	1 U
71-55-6	1,1,1-TRICHLOROETHANE	1 U	108-90-7	CHLOROBENZENE	1 U
56-23-5	CARBON TETRACHLORIDE	1 U	100-41-4	ETHYLBENZENE	1 U
108-05-4	VINYL ACETATE	1 U	100-42-5	STYRENE	1 U
75-27-4	BROMODICHLOROMETHANE	1 U	1330-20-7	XYLENE (TOTAL)	1 U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7	P-DICHLOROBENZENE	1 U
541-73-1	M-DICHLOROBENZENE	1 U	95-50-1	O-DICHLOROBENZENE	1 U

10/22/91
 W

Sample Number
ENS05

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TC'S FOUND.	VBA		
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 : Sample Number :
 : ENS19 :
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CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A
 Date Analyzed: 08-30-91
 pH: N.A
 Percent Moisture: N.A
 Purge Volume: 25 (mL)

Lab File ID no: ENS19
 Sample Matrix: WATER
 Date Sample Received: 08-09-91
 Data Release Authorized By: *hob*
 Dilution Factor: 1

CAS Number	ug/l or ug/kg (Circle One)	CAS Number	ug/l or ug/kg (Circle One)
74-87-3 CHLOROMETHANE	1 U	78-87-5 1,2-DICHLOROPROPANE	1 U
74-83-9 BROMOMETHANE	1 U	10061-01-5 CIS-1,3-DICHLOROPROPENE	1 U
75-01-4 VINYL CHLORIDE	1 U	79-01-6 TRICHLOROETHENE	1 U
75-00-3 CHLOROETHANE	1 U	124-48-1 DIBROMOCHLOROMETHANE	1 U
75-09-2 METHYLENE CHLORIDE	2 U	79-00-5 1,1,2-TRICHLOROETHANE	1 U
67-64-1 ACETONE	5 U	71-43-2 BENZENE	1 U
75-15-0 CARBON DISULFIDE	1 U	10061-02-6 TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4 1,1-DICHLOROETHENE	1 U	75-25-2 BROMOFORM	1 R
75-34-3 1,1-DICHLOROETHANE	1 U	108-10-1 4-METHYL-2-PENTANONE	5 U
540-59-0 1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6 2-HEXANONE	5 U
67-66-3 CHLOROFORM	1 U	127-18-4 TETRACHLOROETHENE	1 U
107-06-2 1,2-DICHLOROETHANE	1 U	79-34-5 1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3 2-BUTANONE	5 U	108-88-3 TOLUENE	1 U
71-55-6 1,1,1-TRICHLOROETHANE	1 U	108-90-7 CHLOROBENZENE	1 U
56-23-5 CARBON TETRACHLORIDE	1 U	100-41-4 ETHYLBENZENE	1 U
108-05-4 VINYL ACETATE	1 U	100-42-5 STYRENE	1 U
75-27-4 BROMODICHLOROMETHANE	1 U	1330-20-7 XYLENE (TOTAL)	1 U
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7 P-DICHLOROBENZENE	1 U
541-73-1 M-DICHLOROBENZENE	1 U	95-50-1 O-DICHLOROBENZENE	1 U

10/22/91
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Sample Number

ENS19

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TC'S FOUND.	VOA		
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 : Sample Number :
 : ENS20 :
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CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-09-0027

Concentration: Low Medium (Circle one)

Date Extracted/Prepared: N.A

Date Analyzed: 08-30-91

pH: N.A

Percent Moisture: N.A

Purge Volume: 25 (mL)

Lab File ID no:

ENS20

Sample Matrix:

WATER

Date Sample Received:

08-09-91

Data Release Authorized By:

M

Dilution Factor:

1

CAS Number	Chemical Name	ug/l or ug/kg (Circle One)	CAS Number	Chemical Name	ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	1 U	78-87-5	1,2-DICHLOROPROPANE	1 U
74-83-9	BROMOMETHANE	1 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	1 U	79-01-6	TRICHLOROETHENE	1 U
75-00-3	CHLOROETHANE	1 U	124-48-1	DIBROMOCHLOROMETHANE	1 U
75-09-2	METHYLENE CHLORIDE	2 U	79-00-5	1,1,2-TRICHLOROETHANE	1 U
67-64-1	ACETONE	2.2 U	71-43-2	BENZENE	1 U
75-15-0	CARBON DISULFIDE	1 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4	1,1-DICHLOROETHENE	1 U	75-25-2	BROMOFORM	1 R
75-34-3	1,1-DICHLOROETHANE	1 U	108-10-1	4-METHYL-2-PENTANONE	5 U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6	2-HEXANONE	5 U
67-66-3	CHLOROFORM	1 U	127-18-4	TETRACHLOROETHENE	1 U
107-06-2	1,2-DICHLOROETHANE	1 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3	2-BUTANONE	5 U	108-88-3	TOLUENE	1 U
71-55-6	1,1,1-TRICHLOROETHANE	1 U	108-90-7	CHLOROBENZENE	1 U
56-23-5	CARBON TETRACHLORIDE	1 U	100-41-4	ETHYLBENZENE	1 U
108-05-4	VINYL ACETATE	1 U	100-42-5	STYRENE	1 U
75-27-4	BROMODICHLOROMETHANE	1 U	1330-20-7	XYLENE (TOTAL)	1 U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7	P-DICHLOROBENZENE	1 U
541-73-1	M-DICHLOROBENZENE	1 U	95-50-1	O-DICHLOROBENZENE	1 U

10/2/91

Wm

Sample Number
EN'S 20

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. _____	NO PIC'S FOUND.	VBA		
2. _____				
3. _____				
4. _____				
5. _____				
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 : Sample Number :
 : ENS21 :
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CLIENT : EPA REGION 5
 PROJECT : 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-09-0027

Concentration: Low Medium (Circle one)

Date Extracted/Prepared: N.A.
 Date Analyzed: 08-30-91
 pH: N.A.
 Percent Moisture: N.A.
 Purge Volume: 25 (mL)

Lab File ID no: ENS21
 Sample Matrix: WATER
 Date Sample Received: 08-09-91
 Data Release Authorized By: M
 Dilution Factor: 1

CAS Number	Chemical Name	ug/l or ug/kg (Circle One)	CAS Number	Chemical Name	ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	1 U	78-87-5	1,2-DICHLOROPROPANE	1 U
74-83-9	BROMOMETHANE	1 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	1 U	79-01-6	TRICHLOROETHENE	1 U
75-00-3	CHLOROETHANE	1 U	124-48-1	DIBROMOCHLOROMETHANE	1 U
75-09-2	METHYLENE CHLORIDE	2 U	79-00-5	1,1,2-TRICHLOROETHANE	1 U
67-64-1	ACETONE	5 U	71-43-2	BENZENE	1 U
75-15-0	CARBON DISULFIDE	1 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4	1,1-DICHLOROETHENE	1 U	75-25-2	BROMOFORM	1 R
75-34-3	1,1-DICHLOROETHANE	1 U	108-10-1	4-METHYL-2-PENTANONE	5 U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6	2-HEXANONE	5 U
67-66-3	CHLOROFORM	1 U	127-18-4	TETRACHLOROETHENE	1 U
107-06-2	1,2-DICHLOROETHANE	1 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3	2-BUTANONE	5 U	108-88-3	TOLUENE	1 U
71-55-6	1,1,1-TRICHLOROETHANE	1 U	108-90-7	CHLOROBENZENE	1 U
56-23-5	CARBON TETRACHLORIDE	1 U	100-41-4	ETHYLBENZENE	1 U
108-05-4	VINYL ACETATE	1 U	100-42-5	STYRENE	1 U
75-27-4	BROMODICHLOROMETHANE	1 U	1330-20-7	XYLENE (TOTAL)	1 U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7	P-DICHLOROBENZENE	1 U
541-73-1	M-DICHLOROBENZENE	1 U	95-50-1	O-DICHLOROBENZENE	1 U

10/22/91
 w

Sample Number

EN521

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO TC'S FOUND.	VBA		
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 : Sample Number :
 : ENS22 :
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CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)

Date Extracted/Prepared: N.A

Date Analyzed: 08-30-91

pH: N.A

Percent Moisture: N.A

Purge Volume: 25 (mL)

Lab File ID no:

ENS22

Sample Matrix:

WATER

Date Sample Received:

08-09-91

Data Release Authorized By:

RM

Dilution Factor:

1

CAS Number		ug/l or ug/kg (Circle One)	CAS Number		ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE	1 U	78-87-5	1,2-DICHLOROPROPANE	1 U
74-83-9	BROMOMETHANE	1 U	10061-01-5	CIS-1,3-DICHLOROPROPENE	1 U
75-01-4	VINYL CHLORIDE	1 U	79-01-6	TRICHLOROETHENE	1 U
75-00-3	CHLOROETHANE	1 U	124-48-1	DIBROMOCHLOROMETHANE	1 U
75-09-2	METHYLENE CHLORIDE	2 U	79-00-5	1,1,2-TRICHLOROETHANE	1 U
67-64-1	ACETONE	5 U	71-43-2	BENZENE	1 U
75-15-0	CARBON DISULFIDE	1 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4	1,1-DICHLOROETHENE	1 U	75-25-2	BROMOFORM	1 R
75-34-3	1,1-DICHLOROETHANE	1 U	108-10-1	4-METHYL-2-PENTANONE	5 U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6	2-HEXANONE	5 U
67-66-3	CHLOROFORM	1 U	127-18-4	TETRACHLOROETHENE	1 U
107-06-2	1,2-DICHLOROETHANE	1 U	79-34-5	1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3	2-BUTANONE	5 U	108-88-3	TOLUENE	1 U
71-55-6	1,1,1-TRICHLOROETHANE	1 U	108-90-7	CHLOROBENZENE	1 U
56-23-5	CARBON TETRACHLORIDE	1 U	100-41-4	ETHYLBENZENE	1 U
108-05-4	VINYL ACETATE	1 U	100-42-5	STYRENE	1 U
75-27-4	BROMODICHLOROMETHANE	1 U	1330-20-7	XYLENE (TOTAL)	1 U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7	P-DICHLOROBENZENE	1 U
541-73-1	M-DICHLOROBENZENE	1 U	95-50-1	O-DICHLOROBENZENE	1 U

10/22/91
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Sample Number

ENS 22

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. _____	NO TC'S FOUND.	VBA		
2. _____				
3. _____				
4. _____				
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 : Sample Number :
 : VBW2535-1 :
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CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-09-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A
 Date Analyzed: 08-30-91
 pH: N.A
 Percent Moisture: N.A
 Purge Volume: 25 (mL)

Lab File ID no: V8G30
 Sample Matrix: WATER
 Date Sample Received: N.R.
 Data Release Authorized By: AV
 Dilution Factor: 1

CAS Number	<u>ug/l</u> or ug/kg (Circle One)	CAS Number	<u>ug/l</u> or ug/kg (Circle One)
74-87-3 CHLOROMETHANE	1 U	78-87-5 1,2-DICHLOROPROPANE	1 U
74-83-9 BROMOMETHANE	1 U	10061-01-5 CIS-1,3-DICHLOROPROPENE	1 U
75-01-4 VINYL CHLORIDE	1 U	79-01-6 TRICHLOROETHENE	1 U
75-00-3 CHLOROETHANE	1 U	124-48-1 DIBROMOCHLOROMETHANE	1 U
75-09-2 METHYLENE CHLORIDE	2 U	79-00-5 1,1,2-TRICHLOROETHANE	1 U
67-64-1 ACETONE	1.9 U	71-43-2 BENZENE	1 U
75-15-0 CARBON DISULFIDE	1 U	10061-02-6 TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4 1,1-DICHLOROETHENE	1 U	75-25-2 BROMOFORM	1 U
75-34-3 1,1-DICHLOROETHANE	1 U	108-10-1 4-METHYL-2-PENTANONE	5 U
540-59-0 1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6 2-HEXANONE	5 U
67-66-3 CHLOROFORM	1 U	127-18-4 TETRACHLOROETHENE	1 U
107-06-2 1,2-DICHLOROETHANE	1 U	79-34-5 1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3 2-BUTANONE	5 U	108-88-3 TOLUENE	1 U
71-55-6 1,1,1-TRICHLOROETHANE	1 U	108-90-7 CHLOROBENZENE	1 U
56-23-5 CARBON TETRACHLORIDE	1 U	100-41-4 ETHYLBENZENE	1 U
108-05-4 VINYL ACETATE	1 U	100-42-5 STYRENE	1 U
75-27-4 BROMODICHLOROMETHANE	1 U	1330-20-7 XYLENE (TOTAL)	1 U
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7 P-DICHLOROBENZENE	1 U
541-73-1 M-DICHLOROBENZENE	1 U	95-50-1 O-DICHLOROBENZENE	1 U

Sample Number

VBW 2535-1

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No HC'S FOUND.	VBA		
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 : Sample Number :
 : VBW2535-2 :
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CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-D9-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A.
 Date Analyzed: 08-30-91
 pH: N.A.
 Percent Moisture: N.A.
 Purge Volume: 25 (mL)

Lab File ID no: ABG30
 Sample Matrix: WATER
 Date Sample Received: N.R.
 Data Release Authorized By: RM
 Dilution Factor: 1

CAS Number	ug/l or ug/kg (Circle One)	CAS Number	ug/l or ug/kg (Circle One)
74-87-3	CHLOROMETHANE 1 U	78-87-5	1,2-DICHLOROPROPANE 1 U
74-83-9	BROMOMETHANE 1 U	10061-01-5	CIS-1,3-DICHLOROPROPENE 1 U
75-01-4	VINYL CHLORIDE 1 U	79-01-6	TRICHLOROETHENE 1 U
75-00-3	CHLOROETHANE 1 U	124-48-1	DIBROMOCHLOROMETHANE 1 U
75-09-2	METHYLENE CHLORIDE 2 U	79-00-5	1,1,2-TRICHLOROETHANE 1 U
67-64-1	ACETONE 5 U	71-43-2	BENZENE 1 U
75-15-0	CARBON DISULFIDE 1 U	10061-02-6	TRANS-1,3-DICHLOROPROPENE 1 U
75-35-4	1,1-DICHLOROETHENE 1 U	75-25-2	BROMOFORM 1 U
75-34-3	1,1-DICHLOROETHANE 1 U	108-10-1	4-METHYL-2-PENTANONE 5 U
540-59-0	1,2-DICHLOROETHENE (TOTAL) 1 U	591-78-6	2-HEXANONE 5 U
67-66-3	CHLOROFORM 1 U	127-18-4	TETRACHLOROETHENE 1 U
107-06-2	1,2-DICHLOROETHANE 1 U	79-34-5	1,1,2,2-TETRACHLOROETHANE 1 U
78-93-3	2-BUTANONE 5 U	108-88-3	TOLUENE 1 U
71-55-6	1,1,1-TRICHLOROETHANE 1 U	108-90-7	CHLOROBENZENE 1 U
56-23-5	CARBON TETRACHLORIDE 1 U	100-41-4	ETHYLBENZENE 1 U
108-05-4	VINYL ACETATE 1 U	100-42-5	STYRENE 1 U
75-27-4	BROMODICHLOROMETHANE 1 U	1330-20-7	XYLENE (TOTAL) 1 U
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE 1 U	106-46-7	P-DICHLOROBENZENE 1 U
541-73-1	M-DICHLOROBENZENE 1 U	95-50-1	O-DICHLOROBENZENE 1 U

Sample Number
VDW-2535-2

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO PIC'S FOUND.	VGA		
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 : Sample Number :
 : VBW2535-3 :
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CLIENT : EPA REGION 5
 PROJECT: 16929/SAS 6339E
 SDG No.: EKL27

Contract: 68-09-0027

Concentration: Low Medium (Circle one)
 Date Extracted/Prepared: N.A
 Date Analyzed: 08-31-91
 pH: N.A
 Percent Moisture: N.A
 Purge Volume: 25 (mL)

Lab File ID no: VBG31
 Sample Matrix: WATER
 Date Sample Received: N.R
 Data Release Authorized By: *Ry*
 Dilution Factor: 1

CAS Number	<u>ug/l</u> or ug/kg (Circle One)	CAS Number	<u>ug/l</u> or ug/kg (Circle One)
74-87-3 CHLOROMETHANE	1 U	78-87-5 1,2-DICHLOROPROPANE	1 U
74-83-9 BROMOMETHANE	1 U	10061-01-5 CIS-1,3-DICHLOROPROPENE	1 U
75-01-4 VINYL CHLORIDE	1 U	79-01-6 TRICHLOROETHENE	1 U
75-00-3 CHLOROETHANE	1 U	124-48-1 DIBROMOCHLOROMETHANE	1 U
75-09-2 METHYLENE CHLORIDE	3.2 -	79-00-5 1,1,2-TRICHLOROETHANE	1 U
67-64-1 ACETONE	5 U	71-43-2 BENZENE	1 U
75-15-0 CARBON DISULFIDE	1 U	10061-02-6 TRANS-1,3-DICHLOROPROPENE	1 U
75-35-4 1,1-DICHLOROETHENE	1 U	75-25-2 BROMOFORM	1 U
75-34-3 1,1-DICHLOROETHANE	1 U	108-10-1 4-METHYL-2-PENTANONE	5 U
540-59-0 1,2-DICHLOROETHENE (TOTAL)	1 U	591-78-6 2-HEXANONE	5 U
67-66-3 CHLOROFORM	1 U	127-18-4 TETRACHLOROETHENE	1 U
107-06-2 1,2-DICHLOROETHANE	1 U	79-34-5 1,1,2,2-TETRACHLOROETHANE	1 U
78-93-3 2-BUTANONE	5 U	108-88-3 TOLUENE	1 U
71-55-6 1,1,1-TRICHLOROETHANE	1 U	108-90-7 CHLOROBENZENE	1 U
56-23-5 CARBON TETRACHLORIDE	1 U	100-41-4 ETHYLBENZENE	1 U
108-05-4 VINYL ACETATE	1 U	100-42-5 STYRENE	1 U
75-27-4 BROMODICHLOROMETHANE	1 U	1330-20-7 XYLENE (TOTAL)	1 U
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE	1 U	106-46-7 P-DICHLOROBENZENE	1 U
541-73-1 M-DICHLOROBENZENE	1 U	95-50-1 O-DICHLOROBENZENE	1 U

Sample Number
VBW2535-3

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	NO PIC'S FOUND.	VOA		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

RAS
ORGANIC
SEDIMENT DATA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

PAGE 1 OF ____

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on Aug 27 1991

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory

TO: Data User: MPCA

We have reviewed the data for the following case(s).

SITE NAME: Storn Rubber Tool SMO Case No. _____
EPA Data Set No. _____ No. of D.U./Activity
Samples: _____ Numbers _____
CRL No. _____

SMO Traffic No. ENS 24-31, 33-34, 23
CLP Laboratory: Ut Fona Hrs. Required
for Review: _____

Following are our findings: This review covers the analyses
of 1 water and 2 soil sampler for BAs Volatile
Organics. Refer to the case validation narrative &
Calibration outlier forms for data Qualities.

- ☒ Data are acceptable for use.
☒ Data are acceptable for use with qualifications referenced above.
See Data Qualifier sheets and Calibration Outlier forms for flags and
additional comments.
() Data are preliminary - pending verification by Contractor Laboratory.
See Case Summary above.
() Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

STERN RUBBER AND TOOL
CASE 16929 DELIVERY GROUP ENS 24
WATER AND SOIL - TCL VOLATILES

1 HOLDING TIMES

Holding times for Volatile water and soil samples (sampling to analysis) ranged from 8 to 13 days; there is no indication from the Organic Traffic Report that water samples were preserved with HCl. Aromatic compounds in all samples have been qualified as "J" (estimated) due to possible low bias resulting from loss of aromatics.

2 GC/MS TUNING

GC/MS mass tuning criteria were met for this delivery group.

3 CALIBRATION

Calibration deficiencies are noted on the Calibration Outlier forms.

4 LABORATORY BLANKS

Soil Method Blank VBLK15 contained Methylene chloride and Carbon disulfide at very low concentrations (2 and 1 ug/Kg respectively); Methylene chloride had been qualified "U" (non-detected) in the single soil sample ENS 33. Water Method Blank VBLK17 did not contain TCL compounds. Water Method Blank VBLK19 contained Methylene chloride at 2 ug/L ; where present in associated Investigative samples Methylene chloride has been qualified as "U".

5 FIELD BLANKS

ENS25 was identified as a Field Blank; there were no TCL compounds quantified in this sample.

6 TRIP BLANKS

ENS24 was identified as a Trip Blank; there were no TCL compounds identified in this sample.

7 SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

The number three System Monitoring Compound (1,2-Dichloroethane-d4) was recovered at a percentage slightly above the Contract Required Limits of 76-114% in EMS23 MS (120%) and EMS 23MSD (119%) ; this non-compliance did not result in qualification of Investigative sample compounds.

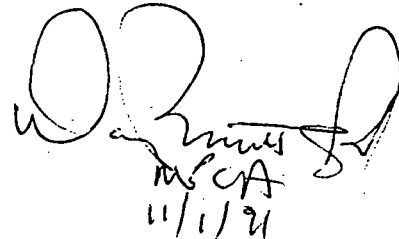
8 MATRIX SPIKE/MATRIX SPIKE DUPLICATES (MS/MSD)

Both the Water MS/MSD and the Soil MS/MSD were within Contract Required QC Limits.

9 INTERNAL STANDARDS PERFORMANCE

Internal Standards were within Contract Required QC Limits for all samples.

10 TCL COMPOUND IDENTIFICATION


MCA
11/1/21

TCL Compounds quantitated in samples from this Delivery Group were identified using library mass spectra, and Relative Retention Times for these compounds were within the appropriate windows.

11 COMPOUND QUANTITATION

TCL Compounds were quantitated as per the CLP Statement of Work.

12 TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

TICs present in samples from this Sample Delivery Group were identified using the laboratories mass spectra library as per the CLP Statement of Work.

W. J. J. J.
11/1/01

AMENDMENT TO
STERN RUBBER AND TOOL
CASE 16929 DELIVERY GROUP ENS 24
WATER AND SOIL - TCL VOLATILES

11/13/91

1 HOLDING TIMES


CLP Sample Traffic Tags indicated that VOC samples were preserved with HCl to a pH of <2 ; the "J" (estimated) qualifier has been removed from Aromatic VOC compounds on the Form I data sheets (technical holding times for Aromatic compounds in acid preserved water samples is 14 days). The original non-detect qualifier ("U") for these compounds should be considered appropriate.

W. Mansfield
WPC
11/13/91

				7/23	11/34	TCL VOLATILES CALIBRATION FORM									
		Initial Cal.	Cont. Cal.	Initial Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration	
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
		RRF	%RSD	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	%RSD
Chloromethane	0.01														
Bromomethane	0.10	< 20.5	< 25.0												
Vinyl chloride	0.10	< 20.5	< 25.0												
Chloroethane	0.01														
Methylene chloride	0.01														
Acetone	0.01														
Carbon disulfide	0.01														
1,1-Dichloroethene	0.10	< 20.5	< 25.0												
1,1-Dichloroethane	0.20	< 20.5	< 25.0												
1,2-Dichloroethene (total)	0.01														
Chloroform	0.20	< 20.5	< 25.0												
1,2-Dichloroethane	0.10	< 20.5	< 25.0												
2-Butanone	0.01					33.2									
1,1,1-Trichloroethane	0.10	< 20.5	< 25.0												
Carbon tetrachloride	0.10	< 20.5	< 25.0												
Bromodichloromethane	0.20	< 20.5	< 25.0												
1,2-Dichloropropane	0.01														
cis-1,3-Dichloropropene	0.20	< 20.5	< 25.0												
Trichloroethene	0.30	< 20.5	< 25.0												
Dibromochloromethane	0.10	< 20.5	< 25.0												
1,1,2-Trichloroethane	0.10	< 20.5	< 25.0												
Benzene	0.50	< 20.5	< 25.0												
trans-1,3-Dichloropropene	0.10	< 20.5	< 25.0												
Bromoform	0.10	< 20.5	< 25.0												
4-Methyl-2-pentanone	0.01														
2-Hexanone	0.01					32.0									
Tetrachloroethene	0.20	< 20.5	< 25.0												
1,1,2,2-Tetrachloroethane	0.50	< 20.5	< 25.0					0.441	25.6	0.478	19.4				
Toluene	0.40	< 20.5	< 25.0												
Chlorobenzene	0.50	< 20.5	< 25.0												
Ethylbenzene	0.10	< 20.5	< 25.0												
Styrene	0.30	< 20.5	< 25.0												
Xylenes (total)	0.30	< 20.5	< 25.0												
Bromofluorobenzene	0.20	< 20.5	< 25.0												
Toluene-d8	0.01														
1,2-Dichloroethane-d4	0.01														
		Associated Samples						VBK 17	ENS 27	VBK 19	ENS 34				
		Associated Samples						ENS 23	ENS 30	ENS 29					
		Associated Samples						ENS 24	ENS 28 MS	ENS 28					
		Associated Samples						ENS 25	ENS 28 MS	ENS 31					

7/24 9²⁵

TCL VOLATILES CALIBRATION FORM

	Initial Cal.			Initial Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration	
	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
	RRF	%RSD	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD
Chloromethane	0.01														
Bromomethane	0.10	< 20.5	< 25.0												
Vinyl chloride	0.10	< 20.5	< 25.0												
Chloroethane	0.01														
Methylene chloride	0.01														
Acetone	0.01														
Carbon disulfide	0.01														
1,1-Dichloroethene	0.10	< 20.5	< 25.0												
1,1-Dichloroethane	0.20	< 20.5	< 25.0												
1,2-Dichloroethene (total)	0.01														
Chloroform	0.20	< 20.5	< 25.0												
1,2-Dichloroethane	0.10	< 20.5	< 25.0												
2-Butanone	0.01			20.5											
1,1,1-Trichloroethane	0.10	< 20.5	< 25.0												
Carbon tetrachloride	0.10	< 20.5	< 25.0												
Bromodichloromethane	0.20	< 20.5	< 25.0												
1,2-Dichloropropane	0.01														
cis-1,3-Dichloropropene	0.20	< 20.5	< 25.0												
Trichloroethene	0.30	< 20.5	< 25.0												
Dibromochloromethane	0.10	< 20.5	< 25.0												
1,1,2-Trichloroethane	0.10	< 20.5	< 25.0												
Benzene	0.50	< 20.5	< 25.0												
trans-1,3-Dichloropropene	0.10	< 20.5	< 25.0												
Bromoform	0.10	< 20.5	< 25.0												
4-Methyl-2-pentanone	0.01														
2-Hexanone	0.01														
Tetrachloroethene	0.20	< 20.5	< 25.0												
1,1,2,2-Tetrachloroethane	0.50	< 20.5	< 25.0												
Toluene	0.40	< 20.5	< 25.0												
Chlorobenzene	0.50	< 20.5	< 25.0												
Ethylbenzene	0.10	< 20.5	< 25.0												
Styrene	0.30	< 20.5	< 25.0												
Xylenes (total)	0.30	< 20.5	< 25.0												
Bromofluorobenzene	0.20	< 20.5	< 25.0												
Toluene-d8	0.01														
1,2-Dichloroethane-d4	0.01														
		Associated Samples				VBIKIS	ENS 26								
		Associated Samples				ENS 33									
		Associated Samples				ENS 33 M									
		Associated Samples				ENS 33 MD									

CHAIN OF CUSTODY RECORD

PROJ. NO. 91YF51		PROJECT NAME STERN RUBBER & TOOL				NO. OF CON- TAINERS	REMARKS EPA TRAIL #S										
SAMPLERS: (Signature) Susan Taylor																	
STA. NO.	DATE & TIME	TIME	COMP.	GRAB	STATION LOCATION												
RO3	8/6/91																
RO4	8/6/91																
DO2	8/6/91																
SO9	8/6/91	2015		X	SPRKE, MONW-1	6,40ml	X										5143695-700
RO5	8/7/91	1005 1015		X	FIELD BLANK, SW-1	2,40ml	X										5143769-770
S10	8/7/91	1015		X	SPRKE, SW-1	6,40ml	X										5143763-768
S11	8/7/91	1025		X	DW-1	2,40ml	X										5143753-754
S12	8/7/91	1115		X	DSW-1	2,40ml	X										5143755-756
S16	8/7/91	1330		X	UW-1	2,40ml	X										5143771-772
RO3	8/6/91	0830		X	TRIP BLANK	2,40ml	X										5143689-690
RO4	8/6/91	1830		X	FIELD BLANK, MONW-1	2,40ml	X										5143691-692
DO2	8/6/91	2010		X	DUPE, MONW-1	2,40ml	X										5143693-694
S14	8/7/91	1040			DSS-1,	2,40ml	X										5143759-760
S16																	
S15	8/7/91	915			BS-1	2,40ml	X										5143761-762
Relinquished by: (Signature) Susan Taylor		Date / Time 8/8/91 1430		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)	
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature) DICK SWARTZING UAC		Date / Time 8/9/91 1000		Remarks COC SEAL#S 96554, 96555 AIRBILL# 0726937363 LAB: UNIVERSITY OF IOWA									

Organic Traffic Report

(For CLP Use Only)

Case Number	SAS No. (if applicable)
169-9	

1. Sample Description (Enter in Column A)	2. Region Number V	Sampling Co. MPC	4. Date Shipped 10/11	Airbill Number 0726R + 36	5. Date Received 8/9/91	Received by Dick Sweeting
1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (SAS) 7. Waste (SAS) 8. Other (SAS) (Specify)	3. Ship To: UNIVERSITY OF IN UNIVERSITY HYGENIC ORGANIC UNIT KODAK CITY, IN 47242 MUNICIPALITY SWEETING		Carrier FEDEX		Laboratory Contract Number 68 D00154	Unit Price \$ 72.5
			Triple volume required for matrix spike/duplicate aqueous sample.		6. Transfer to	Date Received
			Ship medium and high concentration samples in paint cans.		Received by	
			See reverse for additional instructions.		Contract Number	Price

[illegible]

178

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS26

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) SOIL

Lab Sample ID: 9110453

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: V1074

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. 24

Date Analyzed: 08/15/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	13	U
74-83-9	Bromomethane	13	U
75-01-4	Vinyl Chloride	13	U
75-00-3	Chloroethane	13	U
75-09-2	Methylene Chloride	16	U
67-64-1	Acetone	18	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	13	U
75-34-3	1,1-Dichloroethane	13	U
540-59-0	1,2-Dichloroethene (total)	13	U
67-66-3	Chloroform	13	U
107-06-2	1,2-Dichloroethane	13	U
78-93-3	2-Butanone	13	U
71-55-6	1,1,1-Trichloroethane	13	U
56-23-5	Carbon Tetrachloride	13	U
75-27-4	Bromodichloromethane	13	U
78-87-5	1,2-Dichloropropane	13	U
10061-01-5	cis-1,3-Dichloropropene	13	U
79-01-6	Trichloroethene	13	U
124-48-1	Dibromochloromethane	13	U
79-00-5	1,1,2-Trichloroethane	13	U
71-43-2	Benzene	13	U
10061-02-6	trans-1,3-Dichloropropene	13	U
75-25-2	Bromoform	13	U
108-10-1	4-Methyl-2-Pentanone	13	U
591-78-6	2-Hexanone	13	U
127-18-4	Tetrachloroethene	13	U
79-34-5	1,1,2,2-Tetrachloroethane	13	U
108-88-3	Toluene	13	U
108-90-7	Chlorobenzene	13	U
100-41-4	Ethylbenzene	13	U
100-42-5	Styrene	13	U
1330-20-7	Xylene (total)	13	U

INSTR ID 7001

11/1/91

5's removed
11/13/91

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS26

Lab Name: HYGIENIC LAB Contract: 68-D0-0154

Lab Code: IOWA Case No.: 16929 SAS No.: _____ SDG No.: ENS23

Matrix: (soil/water) SOIL Lab Sample ID: 9110453

Sample wt/vol: 5.0 (g/mL) G Lab File ID: V1074

Level: (low/med) LOW Date Received: 08/09/91

% Moisture: not dec. 24 Date Analyzed: 08/15/91

GC Column: DB-624 ID: 0.530 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (ul) Soil Aliquot Volume: _____ (ul)

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

INSTR ID 7001

16929

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS33

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) SOIL

Lab Sample ID: 9110459

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: V1070

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. 30

Date Analyzed: 08/15/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	14	U
74-83-9	Bromomethane	14	U
75-01-4	Vinyl Chloride	14	U
75-00-3	Chloroethane	14	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	21	U
75-15-0	Carbon Disulfide	14	U
75-35-4	1,1-Dichloroethene	14	U
75-34-3	1,1-Dichloroethane	14	U
540-59-0	1,2-Dichloroethene (total)	14	U
67-66-3	Chloroform	14	U
107-06-2	1,2-Dichloroethane	5	J
78-93-3	2-Butanone	14	U
71-55-6	1,1,1-Trichloroethane	14	U
56-23-5	Carbon Tetrachloride	14	U
75-27-4	Bromodichloromethane	14	U
78-87-5	1,2-Dichloropropane	14	U
10061-01-5	cis-1,3-Dichloropropene	14	U
79-01-6	Trichloroethene	14	U
124-48-1	Dibromochloromethane	14	U
79-00-5	1,1,2-Trichloroethane	14	U
71-43-2	Benzene	14	U
10061-02-6	trans-1,3-Dichloropropene	14	U
75-25-2	Bromoform	14	U
108-10-1	4-Methyl-2-Pentanone	14	U
591-78-6	2-Hexanone	14	U
127-18-4	Tetrachloroethene	14	U
79-34-5	1,1,2,2-Tetrachloroethane	14	U
108-88-3	Toluene	14	U
108-90-7	Chlorobenzene	14	U
100-41-4	Ethylbenzene	14	U
100-42-5	Styrene	14	U
1330-20-7	Xylene (total)	14	U

INSTR ID 7001

+ 11/1/91

45's removed
11/13/91

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS33

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) SOIL

Lab Sample ID: 9110459

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: V1070

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. 30

Date Analyzed: 08/15/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
=====	=====	=====	=====	=====

INSTR ID 7001

RAS

ORGANIC

SURFACE WATER DATA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

PAGE 1 OF _____

DATE:

SUBJECT: Review of Region V CLP Data
Received for Review on

Aug 27 1991

FROM: Curtis Ross, Director (5SCRL)
Central Regional Laboratory

TO: Data User:

MPCA

We have reviewed the data for the following case(s).

SITE NAME: Storn Rubber Tool

SMO Case No. _____

EPA Data Set No. _____ No. of
Samples: _____

D.U./Activity
Numbers _____

CRL No. _____

SMO Traffic No. ENS 24-31, 33-34, 23

CLP Laboratory: Ut Tona

Hrs. Required
for Review: _____

Following are our findings: This review covers the analyses of 1 water and 2 soil sampler for BAs Volatile Organics. Refer to the case validation narrative & Calibration outlier forms for data Qualifiers.

W. J. Petty
11/1/91
MPCA

☒ Data are acceptable for use.

☒ Data are acceptable for use with qualifications referenced above.

See Data Qualifier sheets and Calibration Outlier forms for flags and additional comments.

() Data are preliminary - pending verification by Contractor Laboratory.

See Case Summary above.

() Data are unacceptable.

cc: Carla Dempsey, CLP Quality Assurance Officer, Analytical Operations Branch
James Petty, Chief Quality Assurance Research, EMSL, Las Vegas

STERN RUBBER AND TOOL
CASE 16929 DELIVERY GROUP ENS 24
WATER AND SOIL - TCL VOLATILES

1 HOLDING TIMES

Holding times for Volatile water and soil samples (sampling to analysis) ranged from 8 to 13 days; there is no indication from the Organic Traffic Report that water samples were preserved with HCl. Aromatic compounds in all samples have been qualified as "J" (estimated) due to possible low bias resulting from loss of aromatics.

2 GC/MS TUNING

GC/MS mass tuning criteria were met for this delivery group.

3 CALIBRATION

Calibration deficiencies are noted on the Calibration Outlier forms.

4 LABORATORY BLANKS

Soil Method Blank VBLK15 contained Methylene chloride and Carbon disulfide at very low concentrations (2 and 1 ug/Kg respectively); Methylene chloride had been qualified "U" (non-detected) in the single soil sample ENS 33. Water Method Blank VBLK17 did not contain TCL compounds. Water Method Blank VBLK19 contained Methylene chloride at 2 ug/L ; where present in associated Investigative samples Methylene chloride has been qualified as "U".

5 FIELD BLANKS

ENS25 was identified as a Field Blank; there were no TCL compounds quantified in this sample.

6 TRIP BLANKS

ENS24 was identified as a Trip Blank; there were no TCL compounds identified in this sample.

7 SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

The number three System Monitoring Compound (1,2-Dichloroethane-d4) was recovered at a percentage slightly above the Contract Required Limits of 76-114% in EMS23 MS (120%) and EMS 23MSD (119%) ; this non-compliance did not result in qualification of Investigative sample compounds.

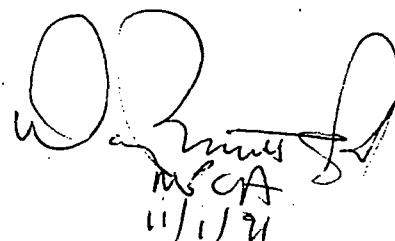
8 MATRIX SPIKE/MATRIX SPIKE DUPLICATES (MS/MSD)

Both the Water MS/MSD and the Soil MS/MSD were within Contract Required QC Limits.

9 INTERNAL STANDARDS PERFORMANCE

Internal Standards were within Contract Required QC Limits for all samples.

10 TCL COMPOUND IDENTIFICATION


MCA
11/1/24

TCL Compounds quantitated in samples from this Delivery Group were identified using library mass spectra, and Relative Retention Times for these compounds were within the appropriate windows.

11 COMPOUND QUANTITATION

TCL Compounds were quantitated as per the CLP Statement of Work.

12 TENTATIVELY IDENTIFIED COMPOUNDS (TICs)

TICs present in samples from this Sample Delivery Group were identified using the laboratories mass spectra library as per the CLP Statement of Work.

W. J. J. J.
11/1/21

AMENDMENT TO
STERN RUBBER AND TOOL
CASE 16929 DELIVERY GROUP ENS 24
WATER AND SOIL - TCL VOLATILES

11/13/91

1 HOLDING TIMES

CLP Sample Traffic Tags indicated that VOC samples were preserved with HCl to a pH of <2 ; the "J" (estimated) qualifier has been removed from Aromatic VOC compounds on the Form I data sheets (technical holding times for Aromatic compounds in acid preserved water samples is 14 days). The original non-detect qualifier ("U") for these compounds should be considered appropriate.

W. Matthews
W. Matthews
11/13/91

				7/23	11/34	TCL VOLATILES CALIBRATION FORM									
		Initial Cal.	Cont. Cal.	Initial Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration	
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
		RRF	%RSD	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	%RSD
Chloromethane	0.01														
Bromomethane	0.10	< 20.5	< 25.0												
Vinyl chloride	0.10	< 20.5	< 25.0												
Chloroethane	0.01														
Methylene chloride	0.01														
Acetone	0.01														
Carbon disulfide	0.01														
1,1-Dichloroethene	0.10	< 20.5	< 25.0												
1,1-Dichloroethane	0.20	< 20.5	< 25.0												
1,2-Dichloroethene (total)	0.01														
Chloroform	0.20	< 20.5	< 25.0												
1,2-Dichloroethane	0.10	< 20.5	< 25.0												
2-Butanone	0.01				33.2										
1,1,1-Trichloroethane	0.10	< 20.5	< 25.0												
Carbon tetrachloride	0.10	< 20.5	< 25.0												
Bromodichloromethane	0.20	< 20.5	< 25.0												
1,2-Dichloropropane	0.01														
cis-1,3-Dichloropropene	0.20	< 20.5	< 25.0												
Trichloroethene	0.30	< 20.5	< 25.0												
Dibromochloromethane	0.10	< 20.5	< 25.0												
1,1,2-Trichloroethane	0.10	< 20.5	< 25.0												
Benzene	0.50	< 20.5	< 25.0												
trans-1,3-Dichloropropene	0.10	< 20.5	< 25.0												
Bromoform	0.10	< 20.5	< 25.0												
4-Methyl-2-pentanone	0.01														
2-Hexanone	0.01				32.0										
Tetrachloroethene	0.20	< 20.5	< 25.0												
1,1,2,2-Tetrachloroethane	0.50	< 20.5	< 25.0			0.441	25.6	0.478	19.4						
Toluene	0.40	< 20.5	< 25.0												
Chlorobenzene	0.50	< 20.5	< 25.0												
Ethylbenzene	0.10	< 20.5	< 25.0												
Styrene	0.30	< 20.5	< 25.0												
Xylenes (total)	0.30	< 20.5	< 25.0												
Bromofluorobenzene	0.20	< 20.5	< 25.0												
Toluene-d8	0.01														
1,2-Dichloroethane-d4	0.01														
		Associated Samples				VBK 17	ENS 27	VBK 19	ENS 34						
		Associated Samples				ENS 23	ENS 30	ENS 29							
		Associated Samples				ENS 24	ENS 28 MS	ENS 28							
		Associated Samples				ENS 25	ENS 28 MPD	ENS 31							

		7/24 9 ²⁵		TCL VOLATILES CALIBRATION FORM											
		Initial Cal.	Cont. Cal.	Initial Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration		Cont. Calibration	
		Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum	Minimum
		RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD	RRF	%RSD
Chloromethane	0.01														
Bromomethane	0.10	< 20.5	< 25.0												
Vinyl chloride	0.10	< 20.5	< 25.0												
Chloroethane	0.01														
Methylene chloride	0.01														
Acetone	0.01														
Carbon disulfide	0.01														
1,1-Dichloroethene	0.10	< 20.5	< 25.0												
1,1-Dichloroethane	0.20	< 20.5	< 25.0												
1,2-Dichloroethene (total)	0.01														
Chloroform	0.20	< 20.5	< 25.0												
1,2-Dichloroethane	0.10	< 20.5	< 25.0												
2-Butanone	0.01				20.5										
1,1,1-Trichloroethane	0.10	< 20.5	< 25.0												
Carbon tetrachloride	0.10	< 20.5	< 25.0												
Bromodichloromethane	0.20	< 20.5	< 25.0												
1,2-Dichloropropane	0.01														
cis-1,3-Dichloropropene	0.20	< 20.5	< 25.0												
Trichloroethene	0.30	< 20.5	< 25.0												
Dibromochloromethane	0.10	< 20.5	< 25.0												
1,1,2-Trichloroethane	0.10	< 20.5	< 25.0												
Benzene	0.50	< 20.5	< 25.0												
trans-1,3-Dichloropropene	0.10	< 20.5	< 25.0												
Bromoform	0.10	< 20.5	< 25.0												
4-Methyl-2-pentanone	0.01														
2-Hexanone	0.01														
Tetrachloroethene	0.20	< 20.5	< 25.0												
1,1,2,2-Tetrachloroethane	0.50	< 20.5	< 25.0												
Toluene	0.40	< 20.5	< 25.0												
Chlorobenzene	0.50	< 20.5	< 25.0												
Ethylbenzene	0.10	< 20.5	< 25.0												
Styrene	0.30	< 20.5	< 25.0												
Xylenes (total)	0.30	< 20.5	< 25.0												
Bromofluorobenzene	0.20	< 20.5	< 25.0												
Toluene-d8	0.01														
1,2-Dichloroethane-d4	0.01														
		Associated Samples													
		Associated Samples													
		Associated Samples													
		Associated Samples													

[Handwritten signature]

VBIKIS ENS 26
ENS 33
ENS 33 MS
ENS 33 MD

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS		REMARKS									
91YF51		STERN RUBBER & TOOL													
SAMPLERS: (Signature)															
Swan Taylor															
STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	EPA TRI #S									
RO3	8/7/91														
RO4	8/7/91														
DO2	8/7/91														
SO9	8/6/91	2015		X	SPRKE, MONW-1	6,40ml	X								5143695-700
RO5	8/7/91	1005		X	FIELD BLANK, SW-1	2,40ml	X								5143769-770
S10	8/7/91	1015		X	SPRKE, SW-1	6,40ml	X								5143763-768
S11	8/7/91	1025		X	DW-1	2,40ml	X								5143753-754
S12	8/7/91	1115		X	DSW-1	2,40ml	X								5143755-756
S16	8/7/91	1330		X	UN-1	2,40ml	X								5143771-772
RO3	8/6/91	0830		X	TRIP BLANK	2,40ml	X								5143689-690
RO4	8/6/91	1830		X	FIELD BLANK, MONW-1	2,40ml	X								5143691-692
DO2	8/6/91	2010		X	DUPE, MONW-1	2,40ml	X								5143693-694
S14	8/7/91	1040			DSS-1,	2,40ml	X								5143759-760
S16															
S15	8/7/91	915			BS-1	2,40ml	X								5143761-762
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)					
Swan Taylor		8/8/91/1430													
Relinquished by: (Signature)		Date / Time		Received by: (Signature)		Relinquished by: (Signature)		Date / Time		Received by: (Signature)					
Relinquished by: (Signature)		Date / Time		Received for Laboratory by: (Signature)		Date / Time		Remarks							
				DICK SWAN TAYLOR		8/9/91/1000		COC SEAL#S 96554, 96555 AIRBILL# 0726937363 LAB: UNIVERSITY OF IOWA							

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

ENS23

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110450

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1084

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

CAS NO.

COMPOUND

Q

74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	10	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	10	U
75-35-4	1,1-Dichloroethene	10	U
75-34-3	1,1-Dichloroethane	10	U
540-59-0	1,2-Dichloroethene (total)	10	U
67-66-3	Chloroform	10	U
107-06-2	1,2-Dichloroethane	10	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	10	U
56-23-5	Carbon Tetrachloride	10	U
75-27-4	Bromodichloromethane	10	U
78-87-5	1,2-Dichloropropane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
79-01-6	Trichloroethene	10	U
124-48-1	Dibromochloromethane	10	U
79-00-5	1,1,2-Trichloroethane	10	U
71-43-2	Benzene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
75-25-2	Bromoform	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
108-88-3	Toluene	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
100-42-5	Styrene	10	U
1330-20-7	Xylene (total)	10	U

INSTR ID 7001

11/1/91
11/13/91
5" removed
wa

16929

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ENS23

Lab Name: HYGIENIC LAB

Contract: 68-D0-0154

Lab Code: IOWA

Case No.: 16929

SAS No.: _____

SDG No.: ENS23

Matrix: (soil/water) WATER

Lab Sample ID: 9110450

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: V1084

Level: (low/med) LOW

Date Received: 08/09/91

% Moisture: not dec. _____

Date Analyzed: 08/17/91

GC Column: DB-624 ID: 0.530 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (ul)

Soil Aliquot Volume: _____ (ul)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/L

Number TICs found: 0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====

INSTR ID 7001

16929

FORM 1 VOA-TIC

3/90

23

MINNESOTA

DEPARTMENT OF HEALTH

ORGANIC

GROUND WATER ANALYSES

09123738

9.7.90
ORG.FORM.FY91.1MINNESOTA DEPARTMENT OF HEALTH
Chemical Laboratory Section
Organic Chemistry Unit

09123737

09123738

Date Collected: 10-17-91

WATER ANALYSES ONLY

Budget #: PL

Date Received: 10-17-91 10-18-91

Report To: S. Meger

Collected by: S. Meger - MPCA

Chain of
Custody #: _____Field
Blank #: 9123734

297-1784

Laboratory Number	Field Number	Sample Description	Container-				
			Number	Type			
9123734	a	Trip Blank	3	40 ml			
9123735	b	Fellman-outdoor faucet	4	40			
9123736	c	on-site well # 1 - deep	4	40			
9123737	d	Sand point # 1 - southwest	4	40			
9123738	e	Sand point # 2 - southeast	4	40			
Analyses Request Options		ALL	a	b	c	d	e
VOLATILE ORGANICS		465	X				
VOLATILE HALOGENATED ORGANICS (THM)		464					
GASOLINE/FUEL OIL + HALOGENATED		463					
VOLATILE ORGANICS by GC/MS		468					
CHLOROPHENOXY ACID HERBICIDES (CPA)		574					
POLYNUCLEAR AROMATIC HYDROCARBONS (PAH)		470					
POLYCHLORINATED BIPHENYLS (PCBs)		420					
PHTHALATE ESTERS		490					
PESTICIDES, CHLORINATED		502					
TOXAPHENE		520					
TECHNICAL CHLORDANE		530					
DDT GROUP		550					
PESTICIDES, NITROGEN/PHOSPHOROUS		571					
SPECIAL SAMPLE HOURS		560					
Field Notes: RW-2 water was fizzy when collected							
Laboratory Notes:							

OCT 30 1991

RECEIVED

OCT 31 91

Solid Waste Div.

502.4 MINNESOTA DEPARTMENT OF HEALTH - CHEMICAL LABORATORY
VOLATILE HYDROCARBONS (code 465)

1

SAMPLED: 10/17/91
ANALYZED: 10/25/91
REPORTED: 10/30/91

LAB SAMPLE #: 9123734

FIELD BLANK #: 9123734

COMPOUND	REPORTING LIMIT (UG/L)	AMOUNT FOUND (UG/L)	COMPOUND	REPORTING LIMIT (UG/L)	AMOUNT FOUND (UG/L)
Dichlorodifluoromethane	< 1.0		1122-Tetrachloroethane	< 0.2	
Chloromethane	< 2.0		123-Trichloropropane	< 0.5	
Vinyl Chloride	< 1.0		Bromobenzene	< 0.2	
Bromomethane	< 2.0		2-Chlorotoluene	< 0.5	
Chloroethane	< 1.0		4-Chlorotoluene	< 0.5	
Dichlorofluoromethane	< 1.0		1,3-Dichlorobenzene	< 0.2	
Trichlorofluoromethane	< 2.0		1,4-Dichlorobenzene	< 0.2	
Trichloro-			1,2-Dichlorobenzene	< 0.2	
trifluoroethane	< 0.2		1,2-Dibromo-		
1,1-Dichloroethene	< 0.5		3-Chloropropane	< 2.0	
Allyl Chloride	< 0.5		124-Trichlorobenzene	< 0.5	
Methylene Chloride	< 0.5		Hexachlorobutadiene	< 0.5	
t-1,2-Dichloroethene	< 0.1		123-Trichlorobenzene	< 0.5	
1,1-Dichloroethane	< 0.2		Ethyl Ether	< 2.0	
2,2-dichloropropane	< 0.5		Acetone	< 20	
c-1,2 Dichloroethene	< 0.2		Methyl tertiary-		
Chloroform	< 0.1		Butyl Ether	< 2.0	
Bromochloromethane	< 0.5		Methyl Ethyl Ketone	< 10	
1,1,1-Trichloroethane	< 0.2		Tetrahydrofuran	< 10	
1,1-Dichloropropene	< 0.2		Benzene	< 0.2	
Carbon Tetrachloride	< 0.2		Methyl Isobutyl Ketone	< 5.0	
1,2-Dichloroethane	< 0.2		Toluene	< 0.2	
Trichloroethene	< 0.1		Ethyl Benzene	< 0.2	
1,2-Dichloropropane	< 0.2		m+p-Xylene	< 0.2	
Bromodichloromethane	< 0.2		o-Xylene	< 0.2	
Dibromomethane	< 1.0		Styrene	< 0.5	
c-1,3-Dichloropropene	< 0.2		Isopropyl Benzene	< 0.5	
t-1,3-Dichloropropene	< 0.2		n-Propyl Benzene	< 0.5	
1,1,2-Trichloroethane	< 0.2		135-Trimethylbenzene	< 0.5	
1,3-Dichloropropane	< 0.2		tert-Butyl Benzene	< 0.5	
Tetrachloroethene	< 0.2		124-Trimethylbenzene	< 0.5	
Chlorodibromomethane	< 0.5		sec-Butylbenzene	< 0.5	
1,2-Dibromoethane	< 1.0		p-Isopropyltoluene	< 0.5	
Chlorobenzene	< 0.2		n-Butylbenzene	< 0.5	
1112-Tetrachloroethane	< 0.2		Naphthalene	< 0.5	
Bromoform	< 1.0				

COMMENTS:

Trip blank

Legend:

< = less than
PP = peak present

SAMPLED: 10/17/91
ANALYZED: 10/25/91
REPORTED: 10/30/91

LAB SAMPLE #: 9123735

FIELD BLANK #: 9123734

REPORTING AMOUNT			REPORTING AMOUNT		
LIMIT FOUND			LIMIT FOUND		
COMPOUND	(UG/L)	(UG/L)	COMPOUND	(UG/L)	(UG/L)
Dichlorodifluoromethane	< 1.0		1122-Tetrachloroethane	< 0.2	
Chloromethane	< 2.0		123-Trichloropropane	< 0.5	
Vinyl Chloride	< 1.0		Bromobenzene	< 0.2	
Bromomethane	< 2.0		2-Chlorotoluene	< 0.5	
Chloroethane	< 1.0		4-Chlorotoluene	< 0.5	
Dichlorofluoromethane	< 1.0		1,3-Dichlorobenzene	< 0.2	
Trichlorofluoromethane	< 2.0		1,4-Dichlorobenzene	< 0.2	
Trichloro-			1,2-Dichlorobenzene	< 0.2	
trifluoroethane	< 0.2		1,2-Dibromo-		
1,1-Dichloroethene	< 0.5		3-Chloropropane	< 2.0	
Allyl Chloride	< 0.5		124-Trichlorobenzene	< 0.5	
Methylene Chloride	< 0.5		Hexachlorobutadiene	< 0.5	
t-1,2-Dichloroethene	< 0.1		123-Trichlorobenzene	< 0.5	
1,1-Dichloroethane	< 0.2		Ethyl Ether	< 2.0	
2,2-dichloropropane	< 0.5		Acetone	< 20	
c-1,2 Dichloroethene	< 0.2		Methyl tertiary-		
Chloroform	< 0.1		Butyl Ether	< 2.0	
Bromochloromethane	< 0.5		Methyl Ethyl Ketone	< 10	
1,1,1-Trichloroethane	< 0.2		Tetrahydrofuran	< 10	
1,1-Dichloropropene	< 0.2		Benzene	< 0.2	
Carbon Tetrachloride	< 0.2	0.2	Methyl Isobutyl Ketone	< 5.0	
1,2-Dichloroethane	< 0.2		Toluene	< 0.2	
Trichloroethene	< 0.1		Ethyl Benzene	< 0.2	
1,2-Dichloropropane	< 0.2		m+p-Xylene	< 0.2	
Bromodichloromethane	< 0.2		o-Xylene	< 0.2	
Dibromomethane	< 1.0		Styrene	< 0.5	
c-1,3-Dichloropropene	< 0.2		Isopropyl Benzene	< 0.5	
t-1,3-Dichloropropene	< 0.2		n-Propyl Benzene	< 0.5	
1,1,2-Trichloroethane	< 0.2		135-Trimethylbenzene	< 0.5	
1,3-Dichloropropane	< 0.2		tert-Butyl Benzene	< 0.5	
Tetrachloroethene	< 0.2		124-Trimethylbenzene	< 0.5	
Chlorodibromomethane	< 0.5		sec-Butylbenzene	< 0.5	
1,2-Dibromoethane	< 1.0		p-Isopropyltoluene	< 0.5	
Chlorobenzene	< 0.2		n-Butylbenzene	< 0.5	
1112-Tetrachloroethane	< 0.2		Naphthalene	< 0.5	
Bromoform	< 1.0				

COMMENTS:

Fellman - outdoor faucet

Legend:

< = less than
PP = peak present

57

SAMPLED: 10/17/91
ANALYZED: 10/25/91
REPORTED: 10/30/91

LAB SAMPLE #: 9123736

FIELD BLANK #: 9123734

COMPOUND	REPORTING LIMIT (UG/L)	AMOUNT FOUND (UG/L)	COMPOUND	REPORTING LIMIT (UG/L)	AMOUNT FOUND (UG/L)
Dichlorodifluoromethane	< 1.0		1122-Tetrachloroethane	< 0.2	
Chloromethane	< 2.0		123-Trichloropropane	< 0.5	
Vinyl Chloride	< 1.0		Bromobenzene	< 0.2	
Bromomethane	< 2.0		2-Chlorotoluene	< 0.5	
Chloroethane	< 1.0		4-Chlorotoluene	< 0.5	
Dichlorofluoromethane	< 1.0		1,3-Dichlorobenzene	< 0.2	
Trichlorofluoromethane	< 2.0		1,4-Dichlorobenzene	< 0.2	
Trichloro- trifluoroethane	< 0.2		1,2-Dichlorobenzene	< 0.2	
1,1-Dichloroethene	< 0.5		1,2-Dibromo- 3-Chloropropane	< 2.0	
Allyl Chloride	< 0.5		124-Trichlorobenzene	< 0.5	
Methylene Chloride	< 0.5		Hexachlorobutadiene	< 0.5	
t-1,2-Dichloroethene	< 0.1		123-Trichlorobenzene	< 0.5	
1,1-Dichloroethane	< 0.2		Ethyl Ether	< 2.0	
2,2-dichloropropane	< 0.5		Acetone	< 20	
c-1,2 Dichloroethene	< 0.2		Methyl tertiary- Butyl Ether	< 2.0	
Chloroform	< 0.1		Methyl Ethyl Ketone	< 10	
Bromochloromethane	< 0.5		Tetrahydrofuran	< 10	
1,1,1-Trichloroethane	< 0.2		Benzene	< 0.2	
1,1-Dichloropropene	< 0.2		Methyl Isobutyl Ketone	< 5.0	
Carbon Tetrachloride	< 0.2	0.2	Toluene	< 0.2	19
1,2-Dichloroethane	< 0.2		Ethyl Benzene	< 0.2	
Trichloroethene	< 0.1		m+p-Xylene	< 0.2	
1,2-Dichloropropane	< 0.2		o-Xylene	< 0.2	
Bromodichloromethane	< 0.2		Styrene	< 0.5	
Dibromomethane	< 1.0		Isopropyl Benzene	< 0.5	
c-1,3-Dichloropropene	< 0.2		n-Propyl Benzene	< 0.5	
t-1,3-Dichloropropene	< 0.2		135-Trimethylbenzene	< 0.5	
1,1,2-Trichloroethane	< 0.2		tert-Butyl Benzene	< 0.5	
1,3-Dichloropropane	< 0.2		124-Trimethylbenzene	< 0.5	
Tetrachloroethene	< 0.2		sec-Butylbenzene	< 0.5	
Chlorodibromomethane	< 0.5		p-Isopropyltoluene	< 0.5	
1,2-Dibromoethane	< 1.0		n-Butylbenzene	< 0.5	
Chlorobenzene	< 0.2		Naphthalene	< 0.5	
1112-Tetrachloroethane	< 0.2				
Bromoform	< 1.0				

COMMENTS:

Stern Rubber & Tool
deep well

Legend:

< = less than
PP = peak present

SAMPLED: 10/17/91
ANALYZED: 10/25/91
REPORTED: 10/30/91

LAB SAMPLE #: 9123737

FIELD BLANK #: 9123734

COMPOUND	REPORTING LIMIT (UG/L)	AMOUNT FOUND (UG/L)	COMPOUND	REPORTING LIMIT (UG/L)	AMOUNT FOUND (UG/L)
Dichlorodifluoromethane	< 1.0		1122-Tetrachloroethane	< 0.2	
Chloromethane	< 2.0		123-Trichloropropane	< 0.5	
Vinyl Chloride	< 1.0		Bromobenzene	< 0.2	
Bromomethane	< 2.0		2-Chlorotoluene	< 0.5	
Chloroethane	< 1.0		4-Chlorotoluene	< 0.5	
Dichlorofluoromethane	< 1.0		1,3-Dichlorobenzene	< 0.2	
Trichlorofluoromethane	< 2.0		1,4-Dichlorobenzene	< 0.2	
Trichloro- trifluoroethane	< 0.2		1,2-Dichlorobenzene	< 0.2	
1,1-Dichloroethene	< 0.5		1,2-Dibromo- 3-Chloropropane	< 2.0	
Allyl Chloride	< 0.5		124-Trichlorobenzene	< 0.5	
Methylene Chloride	< 0.5		Hexachlorobutadiene	< 0.5	
t-1,2-Dichloroethene	< 0.1		123-Trichlorobenzene	< 0.5	
1,1-Dichloroethane	< 0.2		Ethyl Ether	< 2.0	
2,2-dichloropropane	< 0.5		Acetone	< 20	
c-1,2 Dichloroethene	< 0.2		Methyl tertiary- Butyl Ether	< 2.0	
Chloroform	< 0.1		Methyl Ethyl Ketone	< 10	
Bromochloromethane	< 0.5		Tetrahydrofuran	< 10	
1,1,1-Trichloroethane	< 0.2		Benzene	< 0.2	
1,1-Dichloropropene	< 0.2		Methyl Isobutyl Ketone	< 5.0	5.7
Carbon Tetrachloride	< 0.2	0.2	Toluene	< 0.2	9.6
1,2-Dichloroethane	< 0.2		Ethyl Benzene	< 0.2	
Trichloroethene	< 0.1		m+p-Xylene	< 0.2	
1,2-Dichloropropane	< 0.2		o-Xylene	< 0.2	
Bromodichloromethane	< 0.2		Styrene	< 0.5	
Dibromomethane	< 1.0		Isopropyl Benzene	< 0.5	
c-1,3-Dichloropropene	< 0.2		n-Propyl Benzene	< 0.5	
t-1,3-Dichloropropene	< 0.2		135-Trimethylbenzene	< 0.5	
1,1,2-Trichloroethane	< 0.2		tert-Butyl Benzene	< 0.5	
1,3-Dichloropropane	< 0.2		124-Trimethylbenzene	< 0.5	
Tetrachloroethene	< 0.2		sec-Butylbenzene	< 0.5	
Chlorodibromomethane	< 0.5		p-Isopropyltoluene	< 0.5	
1,2-Dibromoethane	< 1.0		n-Butylbenzene	< 0.5	
Chlorobenzene	< 0.2		Naphthalene	< 0.5	
1112-Tetrachloroethane	< 0.2				
Bromoform	< 1.0				

COMMENTS:

Stern Rubber & Tool
Sand point (south west)

Legend:

< = less than
PP = peak present

502.4 MINNESOTA DEPARTMENT OF HEALTH - CHEMICAL LABORATORY
VOLATILE HYDROCARBONS (code 465)

1

SAMPLED: 10/17/91
ANALYZED: 10/25/91
REPORTED: 10/30/91

LAB SAMPLE #: 9123738

FIELD BLANK #: 9123734

COMPOUND	REPORTING AMOUNT		COMPOUND	REPORTING AMOUNT	
	LIMIT	FOUND		LIMIT	FOUND
	(UG/L)	(UG/L)		(UG/L)	(UG/L)
Dichlorodifluoromethane	< 1.0		1122-Tetrachloroethane	< 0.2	
Chloromethane	< 2.0		123-Trichloropropane	< 0.5	
Vinyl Chloride	< 1.0		Bromobenzene	< 0.2	
Bromomethane	< 2.0		2-Chlorotoluene	< 0.5	
Chloroethane	< 1.0		4-Chlorotoluene	< 0.5	
Dichlorofluoromethane	< 1.0		1,3-Dichlorobenzene	< 0.2	
Trichlorofluoromethane	< 2.0		1,4-Dichlorobenzene	< 0.2	
Trichloro-			1,2-Dichlorobenzene	< 0.2	
trifluoroethane	< 0.2		1,2-Dibromo-		
1,1-Dichloroethene	< 0.5		3-Chloropropane	< 2.0	
Allyl Chloride	< 0.5		124-Trichlorobenzene	< 0.5	
Methylene Chloride	< 0.5		Hexachlorobutadiene	< 0.5	
t-1,2-Dichloroethene	< 0.1		123-Trichlorobenzene	< 0.5	
1,1-Dichloroethane	< 0.2		Ethyl Ether	< 2.0	
2,2-dichloropropane	< 0.5		Acetone	< 20	
c-1,2 Dichloroethene	< 0.2		Methyl tertiary-		
Chloroform	< 0.1		Butyl Ether	< 2.0	
Bromochloromethane	< 0.5		Methyl Ethyl Ketone	< 10	
1,1,1-Trichloroethane	< 0.2		Tetrahydrofuran	< 10	
1,1-Dichloropropene	< 0.2		Benzene	< 0.2	
Carbon Tetrachloride	< 0.2	0.2	Methyl Isobutyl Ketone	< 5.0	
1,2-Dichloroethane	< 0.2		Toluene	< 0.2	210
Trichloroethene	< 0.1		Ethyl Benzene	< 0.2	0.3
1,2-Dichloropropane	< 0.2		m+p-Xylene	< 0.2	1.5
Bromodichloromethane	< 0.2		o-Xylene	< 0.2	0.3
Dibromomethane	< 1.0		Styrene	< 0.5	
c-1,3-Dichloropropene	< 0.2		Isopropyl Benzene	< 0.5	
t-1,3-Dichloropropene	< 0.2		n-Propyl Benzene	< 0.5	
1,1,2-Trichloroethane	< 0.2		135-Trimethylbenzene	< 0.5	
1,3-Dichloropropane	< 0.2		tert-Butyl Benzene	< 0.5	
Tetrachloroethene	< 0.2	0.2	124-Trimethylbenzene	< 0.5	
Chlorodibromomethane	< 0.5		sec-Butylbenzene	< 0.5	
1,2-Dibromoethane	< 1.0		p-Isopropyltoluene	< 0.5	
Chlorobenzene	< 0.2		n-Butylbenzene	< 0.5	
1112-Tetrachloroethane	< 0.2		Naphthalene	< 0.5	
Bromoform	< 1.0				

COMMENTS:

Stern Rubber & Tool
Sandpoint (southeast)

Legend:

< = less than
PP = peak present